MASTER'S THESIS

Ontwerp en validatie van een model dat IT-resources in kaart brengt en ondersteunt bij het maken van (out)sourcebeslissingen

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Design and validation of a model which maps IT resources and supports with (out)sourcing decisions

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Abstract

More and more organizations accept that the way they function and compete depends to a large degree on their IT resources. IT resources include the available data, technology, people and processes within an organization to perform business processes. Both assets and capabilities together define the set of resources available to a firm. Assets are defined as anything (in)tangible an organization can use in its processes to create, produce and/or offer goods or services to a market. Capabilities are explained as repeatable patterns of actions in the use of assets.
In this research the focus is on the perspective of sourcing. A structured overview of IT resources can support organizations in sourcing decisions. A proper framework or model can support to get an overview of those resources and relations between them. In the current literature there's no framework available which contains an overview of IT resources or explains how to get it.
Considering the lack of a framework in the current literature, the aim of this paper is to present a designed and validated model which gives an overview of IT resources and might therefore support in making sourcing decisions. Finally, the limitations, conclusions and future research recommendations are presented.

Key terms

IT resources, capabilities, assets, sourcing, model

Summary

An overview of IT resources (including IT assets and IT capabilities) can support organizations in making sourcing decisions. Even though organizations are willing to get more insight in their IT resources, an overview or sufficient knowledge is generally missing. In the current literature there's no framework or model to be found which contains a structured overview of an organization's IT resources. Considering the lack of an existing framework in the current literature, the objective of this research was to design and validate a model which can give an overview of the IT resources within an organization (including relations between them) and might therefore support in making sourcing decisions. To get that overview the designed model should contain the right IT resources with the right level of detail. The goal is to have a matrix with a difference between assets and capabilities, this split offers the opportunity to find relations between them. These research questions support the research objective:

1. *Which IT resources can be found in the literature?*
2. *How can IT assets and IT capabilities be categorized and how do they relate to each other?*
3. *What level of detail is suitable?*
4. *By means of validation, is the model useful for an organization to get an overview of existing IT resources and can it support in making sourcing decisions?*

To build such a model a theoretical framework was used to have a theoretical foundation. The theoretical knowledge is based on existing literature. In the first place the scientific literature has been checked on models which already exist in this field and could possibly be used as input or as a foundation. The subject can be viewed from multiple perspectives, so to keep things manageable and within scope the literature research has been split into different perspectives. Being part of a research team, this specific paper explored the subject of 'costs'. The articles found during the literature research did help in collecting IT resources (assets and capabilities), but the argumentation how to collect those resources and how to combine them is not explained in detail or not at all. Therefore the costs-perspective confirmed the idea that in the current literature there's no framework or model which contains or explains a structured overview of an organization's IT resources.

The methodology of this research was an iterative process of analysis, (re)design and validation. At first the initial model was designed. This initial model was evaluated against collected documentation/contracts and accordingly refined/redesigned. At last the model was validated in practice by means of semi-structured interviews.
The initial model was designed through a card sort. To be able to run the card sort, all IT resources from the literature researches of the research team were collected and written/printed on cards. The card sort yielded a first model, which was later refined by removing/relocating resources, adding/deleting categories and subcategorization of categories. The card sort eventually yielded a first model, incl. a proper bookkeeping.
Accordingly the initial model was evaluated by means of desk research, i.e. testing the model with documentation, specifically (out)sourcing contracts. These documents made it possible to check whether the IT resources in our initial model were relevant or if something was missing. Even though the desk research did yield some useful information, this step didn't have as much impact as initially suspected. On the other hand, the initial model seemed a solid base and didn't need that much modifications anymore. Eventually, the final model was validated in practice with 5 semi-structured interviews in which the candidates were selected based on purposive sampling. This was part of the strategy, a single-embedded case study.

As planned, all interviews were transcribed to make the data analysable and interpretable. The data was analysed through (axial) coding in combination with pattern matching. The final goal was to develop a coherent overview of arguments from the different interviews which in return could be input for recommendations and conclusions.

Even though there were some comments and arguments for potential improvement, the model in general performed very well during the field research as 100% of the candidates had the feeling to get a better overview of their IT assets and IT capabilities. Despite some potential improvements according feedback, this model can therefore be considered a solid base to be actually used in the field of Information Systems. This is where the research makes a contribution to the existing body of knowledge, because a model or framework like the model in this paper does not yet exist in the literature.
In fact the contribution is twofold, because the model offers organizations the possibility to get an overview of their IT assets and IT capabilities (and the relation between them) and accordingly it might support organizations to make better sourcing decisions. However, it is suggested that a better overview of IT resources leads to better sourcing decisions and even though this sounds very obvious, this can't be proven from this research, simply because existing contracts have been examined, but the model has not been tested while making sourcing decisions.

During the interviews most feedback was about the (lack of) detail. For most interviewees the model in general was too big, while at the same time they missed details for some specific items. This can be best explained as the contracts in question comprised only a certain part of the model. Therefore it is reasonable that people thought the model was too comprehensive, perhaps not realising the generic purpose of the model. At the same time they pinpointed a lack of detail in some categories. Feedback about what could be improved here was e.g. the ability to drilldown or using a 2nd model with more detail. However, it is still hard to judge the model's level of detail, because the contracts of all interviews were quite comparable. Besides, the model was initially intended to be applicable for all kinds of (IT) contracts, so the level of detail might be good after all, but this can perhaps be better judged in combination with the input from the rest of the research team.

There were also some comments about the complexity of the model, specifically the complexity of certain words or categories. Some categories are indeed complex or very general, which makes them hard to interpret. These terms demand some explanation or enhancement. On second thoughts, based on the fact that IT resources are usually critical to a firm's operations and its strategic direction, gaining insight in those IT resources by the use of this model is not presumed to be done by everybody. In other words, considering the complexity of the model and its components, the model demands sufficient knowledge in the field of (out)sourcing and an organization's IT resources. According the interviews it was also believed that the model could do more than just mapping IT resources and help organizations getting insight in them. The model could be used for multiple purposes, e.g. contract evaluation, risk assessment and finding a new partner/supplier (find and define differences between them).

Contents

1. Introduction

1.1. Background

More and more organizations accept that the way they function and compete depends to a large degree on the quality, sustainability and maintainability of their IT resources. Modern organizations and their IT functions are increasingly choosing to rely on external service providers, a practice known as Information Technology Outsourcing (Willcocks, Lacity, & Sauer, 2017). When managers outsource all or part of IT, the motivation is to create business value for the firm. One means of creating business value is by achieving dramatic cost savings through outsourcing; another is through decisions that lead to strategic control of IT resources (Straub, Weill, & Schwaig, 2008). As the global business environment has become more dynamic and complex, competition among companies has become increasingly intense amid ever tighter budget constraints. This tension has forced organizations to make the management of all its resources a priority (Chanopas, Krairit, & Ba Khang, 2006). Operating on the stipulation that an organization should not build strategy around something that its managers cannot understand, a helpful guideline is to re-focus on resources. The first step for the organization is to identify its own resources (Gorman & Thomas, 1997). In this research the focus is on the perspective of (out)sourcing. Having a structured overview of IT resources, e.g. a model or framework, can support an organization in sourcing decisions about acquiring, managing and maintaining their resources.

1.2. Exploration of the topic

During this research the focus is in the field of Information Systems (IS). As described in the previous subchapter, this research focuses on the perspective of (out)sourcing. Sourcing has many definitions, but perhaps the simplest is the handing over to a third party of the management of activities, assets and/or people to achieve required outcomes (Willcocks et al., 2017). Nowadays customers expect many business advantages from outsourcing, including lower costs, better service, new technology, improved business processes and even increased revenues (Lacity & Willcocks, 2009). A structured overview of IT resources may support sourcing decisions. This generic term, IT resources, is defined as the available data, technology, people, and processes within an organization to be used by the manager to perform business processes and tasks (Piccoli & Ives, 2005). In short, IT resources refer to the technology assets available to the firm (Jeffers, 2003). According to Wade and Hulland (2004) it are assets and capabilities together that define the set of resources available to a firm. As they continue, assets are defined as anything tangible or intangible the firm can use in its processes for creating, producing, and/or offering its products (goods or services) to a market. Capabilities they explain as repeatable patterns of actions in the use of assets to create, produce, and/or offer products to a market.

1.3. Problem statement

One means of creating business value is by achieving dramatic cost savings through outsourcing, another is through decisions that lead to strategic control of IT resources (Straub et al., 2008). Both examples illustrate the need to have a good understanding and impression of the IT resources within a firm. Such an overview of IT resources can, as explained earlier, support organizations in making sourcing decisions. However, even though organizations are willing to get more insight in their IT resources, an overview or sufficient knowledge is generally missing. Also, in the current literature, and that's the main problem, there's no guideline or framework to be found which contains a structured overview of IT resources or explains how to get it.

1.4. Research objective and questions

Considering the lack of an existing framework in the current literature, the objective of this research is to design and accordingly validate a model which can give an overview of the IT resources of an organization and supports in sourcing decisions. The difficulty lays in getting an overview of the most important, if not all, IT resources within an organization. To get that overview it's crucial to have a model which contains the right IT resources with the right level of detail. The goal is to have a matrix with assets and capabilities, this split offers the opportunity to find relations between them. This model will be created through design, redesign and validation.

These research questions support the research objective:

1. *Which IT resources can be found in the literature (from a costs point of view)?*
2. *How can IT assets and IT capabilities be categorized and how do they relate to each other?*
3. *What level of detail is suitable?*
4. *By means of validation, is the model useful for an organization to get an overview of existing IT resources and can it support in making sourcing decisions?*

1.5. Motivation

Straub et al. (2008) state that a company with a sound overview of their IT resources have better control and insight over its performance, costs, capacity etc. This gives the opportunity to make better sourcing decisions. In other words, managers who identify IT resources that are critical to their firm's operations and to its strategic direction are theoretically better able to manage those resources if the firm maintains control over them (Straub et al., 2008).
In the literature a lot is written about assets, capabilities and their relationships. All from different perspectives and areas of expertise. However, currently no framework or research exists, as discovered during the literature research (see Chapter 2), which guides in making a structured overview of an organization's IT resources. So, on the one hand this research adds value to the body of knowledge by providing an overview of IT resources and how to categorize them, while simultaneously it gives organizations the ability to map their IT resources and make better sourcing decisions.

1.6. Main lines of approach

In Chapter 2 the theoretical framework will be explained by describing the performed literature research. Specifically, what has been searched for, why and what were the results.
Chapter 3 contains a substantiation for the empirical research, i.e. the methodology of how the research will be executed. In short, the initial design of the model, redesign of the model through desk research and the validation in practice. The practical validation consists of the conceptual design, technical design, data analysis and reflection (validity, reliability and ethics).
In Chapter 4 the activities in the research approach from the methodology will be described.
The final chapter contains the discussion of the outcomes (what do the results mean), the conclusions and recommendations for future research.

2. Theoretical framework

A theoretical framework will be used to have a theoretical foundation and, according Thomas (2005), an instrument capable of translating basic theoretical knowledge into practical applications. The theoretical knowledge will be based on scientific literature.

First the literature has been checked on existing models which could be used as input or as a foundation. The subject can be viewed from multiple perspectives, to keep things manageable and within scope the literature research has been split into different perspectives (related fields of research). There were quite some perspectives, but as the research team contains seven students, the list has been reduced to an equivalent number. Eventually these were the perspectives: *ITIL, Asset Management, Green IT, Architecture, Risk Management and Audit Literature, Security, Costs* and *Other Industries*. In this paper 'costs' has been explored.

2.1. Research approach

According to Saunders, Lewis, and Thornhill (2016) the importance of choices made about the research approach are threefold. It enables you to take a more informed decision about your research design, it will help you to think about the research strategies and knowledge of different research traditions enables you to adapt your research design to cater for constraints. The first step is to critically check the literature you select. To do this in a structured way the source of literature is restricted to the Digital Library of the Open Universiteit, where only peer-reviewed articles are selected. In case an article could not be accessed, Google (Scholar) was used. In the beginning the search terms and criteria were limited to get a feeling with the results. During the process the search query got more complex to get a shorter list of articles.

The number of articles returned from a search query is countless, also with sourcing from a costs-perspective. In the end, the goal of the literature review is to find articles, whether or not with a model, describing what IT resources can be (out)sourced. Research questions are key to stay focused and to find the right articles.

Main question: *Which IT resources are being (can be) outsourced?*
This question can be divided in these sub-questions:

1. *Is a comparable and useful framework present in the literature?*
2. *What are the specific IT assets and IT capabilities?*
3. *What is the applied level of detail?*

The process from the first to the final query was executed through a systematic and iterative process. All details about the literature research, incl. search terms, queries and articles, can be found in Appendix 1. The final query can be found in Table 1. This query yielded 170 peer reviewed articles, from which 38 published in the last 5 years. Even though outsourcing is a relative new phenomenon, it was decided to take a broader look than merely 5 years.

Final search query
(outsourc) AND (IT) AND (management) AND (resourc*) AND (asset*) AND (capabilit*) AND (cost OR costs) AND (Expens* OR expenditur*) AND ("cost management" OR "cost control") AND (model OR framework) AND (list OR overview OR summary)*

Table 1: Final Search Query | OU Digital Library

2.2. Implementation

In short, the literature research has been executed in 4 steps (schematically presented in Figure 1):
Step 1: Literate research, specifically finding a query to get the most valuable articles
Step 2: Examine the titles of the articles and judge on potential
Step 3: Read abstract and quickly scan for a model
Step 4: Read article in full and decide if it is useful

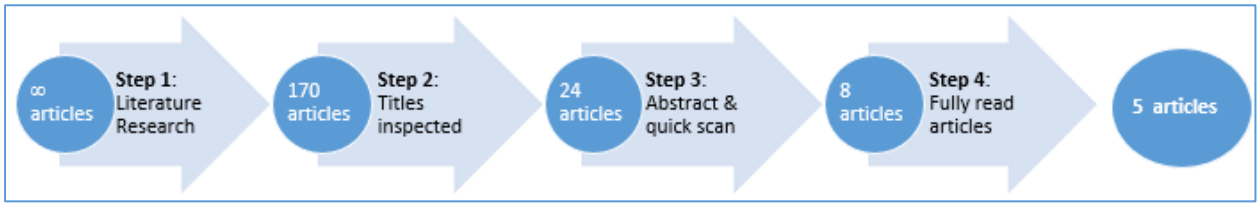

Figure 1: Literature research | Schematic display

The articles which were scored useful during the literature research are listed in Table 2.

Final list of selected articles			
Author(s)	**Article**	**Subject/goal**	**Why useful**
Cruijssen, Dullaert, and Fleuren (2007)	Horizontal cooperation in transport and logistics A literature review	Opportunities, impediments, and facilitators of horizontal cooperation	Contains a list of potential assets/capabilities
Gunasekaran, Irani, Choy, Filippi, and Papadopoulos (2015)	Performance measures and metrics in outsourcing decisions A review for research and applications	Classification of Performance Measures and Metrics (PMM) in outsourcing decisions at the pre-, during-, and post-outsourcing stages	Contains a list of potential assets/capabilities
Jacks, Palvia, Schilhavy, and Wang (2011)	A framework for the impact of IT on organizational performance	A coherent understanding of the firm-level impacts of IT and how to measure it	Contains a list of potential capabilities
Amaral, Billington, and Tsay (2006)	Safeguarding the Promise of Production Outsourcing	Strategies are proposed and analysed to prevent risks and unpleasant surprises when outsourcing production	Contains a list of potential resources
Harvey and Lusch (1997)	Protecting the core competencies of a company Intangible asset security	The role intangible assets play in the core competencies of businesses and they can be protected from losing value	Contains a list of (intangible) assets

Table 2: Final list of selected articles | Literature Research

2.3. Results and conclusions

All selected articles were considered useful for this research. Even though all articles contain a list of IT resources (either assets, capabilities or both), they have one thing in common; those lists were mostly a (small) part of the article or framework. As the aim of this research is to create a generic model with IT resources, it is necessary to get an idea how to build it, which IT resources to include and which level of detail to use. The articles found do help in collecting IT resources, but the argumentation how to collect those resources, why and how to combine them is not explained in detail or not at all. This means the research from a costs-perspective on this topic confirms that in the current literature there's no guideline, research or framework which contains or explains the design of a structured overview of IT resources.

2.4. Objective of the follow-up research

The objective of the follow-up research is to design a model through an iterative process of (re)design and validation. Eventually, the final design needs to be validated in practice to determine the usefulness of the model. To validate the model, it needs to be tested in real-life to check how the model performs and how the candidates respond. The practical validation should yield qualitative, in-depth information, so data analysis can be applied to draw conclusions. All further details about the research strategy, data collection technique and data analysis can be found in the Chapter 3.

The final objective is to design a model which is validated where it was designed for, i.e. the validation should answer this research question:
Is the model useful for an organization to get an overview of existing IT resources and can it support in making sourcing decisions?

3. Methodology

This section provides substantiation for the empirical research. The aim of this research is to design and validate a model and can therefore, according Hevner and Chatterjee (2010), be considered design science as this paradigm is explained to create new and innovative artefacts. Artefacts may include constructs, models, methods and instantiations (Peffers, Tuunanen, Rothenberger, & Chatterjee, 2007).
Lots of papers provide models, frameworks etc. to understand and execute design science. Wieringa (2014) summarizes design science as an iterative process of designing and investigating, whereas the design task is decomposed into problem investigation, treatment design and treatment validation. This research follows the same iterative process: Design of the initial model (3.1, evaluating the model through desk research (3.2), redesign (3.3) and validation in practice (3.4).
The choice has been made to do two rounds of design and validation. Either because of the limited time available and as more iterations are not suspected to significantly enhance the model.

3.1. Initial design of the model

The literature research has been executed by all members of the research team and yielded a number of papers containing IT resources. The first step to design a model based on all these IT resources is to find structure. Specifically, a technique is needed which supports in clustering, categorizing and overcoming different levels of abstraction. The selected technique is 'card sorting'. Spencer and Warfel (2004) explain card sorting as a great, reliable, inexpensive method for finding patters in how users would expect to find content or functionality. Even though it sounds simple, card sorting can be a very powerful technique (Spencer, 2009).

To run the card sort, all IT resources from all member are printed on cards, one card per item. Every member does this for his items. No categories are predefined, so during the card sort the members create the categories. While reading the cards out loud one by one, the team can decide to add a card to an existing category or to create a new one. This makes it an 'open' card sort.
The goal is to have a matrix with both assets and capabilities. Sourcing can be part of one or the other, but mostly it's a combination of both. By splitting the resources it gives the opportunity to find relations. The plan is to run two card sorts, one for assets and one for capabilities.
The card sort will be executed as a group, in a physical session, so every action can be discussed/explained to get better results. In the literature no agreements exists to the number of participants, numbers range from 4 to 20 (Paul, 2008). The goal is a minimum of 5 participants. Disadvantages of a team sort can be group behaviour and a dominant member with a forcing opinion (Spencer, 2009). To not fall into endless discussions or make too many compromises, a supervisor will be present, everyone can have its say and opinions are weighed equally.
At the end all cards within a category will be collected and labelled. The categories will be distributed, so every member has a comparable number of cards. Later on, every member makes a spreadsheet and checks every card if it's in the right category. If not, it will be labelled not applicable, wrong category or new category. Not applicable cards will be deleted and cards in a wrong category will be transferred. New category means a card does not fit any group and demands a new category. This is undesirable and means that the card sort wasn't executed with sufficient care. At last every member checks if a category can be broken down into subcategories. All changes demand group agreement. Finally all spreadsheets will be merged to form the final bookkeeping, which offers insight and traceability.

3.2. Evaluation of the model

Before validating the model in practice, a first evaluation is desired. The evaluation of the artefact provides feedback information and a better understanding of the problem in order to improve both the quality of the product and the design process (Hevner, March, Park, & Ram, 2004). In other words, artefacts must be rigorously and thoroughly tested before releasing the artefact into field testing (Hevner, 2007). This means the initial model will be evaluated against documentation, which gives the opportunity to redesign the model once more before bringing it in the field. Without this step there's a risk of validating a model which is incomplete, inconsistent or irrelevant and therefore useless for real-life testing.

Again, this evaluation is executed by means of desk research, i.e. outsource-documentation. This method is chosen considering the time available and its effort. Examples of these documents are outsourcing contracts, Service Level Agreements and project plans and they are considered helpful as they contain IT resources and information on sourcing. The evaluation make it possible to check whether the IT resources in the initial model are relevant and simultaneously to find missing assets, capabilities and categories which can be used to further refine the model.

Every member of the research team collects at least one useful document. The goal is to have a minimum of 5 documents in total. To avoid the risk of invalid, incomplete or unreliable documents, they are to be collected from the companies the members are employed and the documents should be either in use or successfully completed. The desk research, like with the card sort, will be executed as a team during a physical meeting.

3.3. Redesign

As explained in the previous subchapter, the desk research will be executed to compare the initial model with e.g. sourcing contracts. The evaluation is performed individually, but the results are discussed as a group as this is expected to enrich the findings. All findings and insights will be collected to have it available for the bookkeeping. To take advantage of the team being together, immediately after the discussion the model will be refined/redesigned to save time and effort. After this redesign the model should suffice to be tested in practice.

3.4. Validation in practice

Finally, the model will be validated in practice and the substation for it will be provided here. This chapter is split into 4 subchapters: conceptual design, technical design, data analysis and reflection.

3.4.1. Conceptual design

Now the model is designed, the design-phase in design science has ended. The next step is to validate the model in practice. According Wieringa (2014) the goal of validation is to predict how an artefact will interact with is context. March and Smith (1995) explain it as the process of determining how well the artefact performs. Venable, Pries-Heje, and Baskerville (2012) claim that without evaluation we only have an unsubstantiated design theory or hypothesis that some developed artefact will be useful.

The aim of the practical validation is to test, in a real-life setting, if the model will truly add value. The literature research already revealed that no comparable model exists, so this research explores a so-called new phenomenon. The idea is to apply the model in an organization with sourcing-experience, because by discussing an existing sourcing contract the impact and added value of the model will be discovered. The preferred data is qualitative in nature, because its richness and fullness could explore a subject as real as possible (Saunders et al., 2016). The research strategy that usually fits best to retrieve qualitative data is the case study. Saunders et al. (2016) confirm this by stating that a case study strategy will be of particular interest if you wish to gain a rich understanding of the context of the research and the processes being enacted. According Yin (2013) the phrases 'phenomenon' and 'real-life' are typical for a case study.

According Saunders et al. (2016) exploring a new phenomenon characterizes exploratory research. They continue that a principal way of conducting exploratory research, beside literature research, is interviewing experts in the subject. This opinion is shared by Wieringa (2014), he claims that the easiest way to validate an artefact is by expert opinion.

Yin (2013) discusses 4 different case study strategies: Single vs. multiple and holistic vs. embedded. In short, here the strategy is single-embedded. A single case provides the opportunity to observe and analyse a phenomenon that few have considered before (Saunders et al., 2016). Besides, the validation will be executed at one organization. The reason for this is time, it is preferred to thoroughly test the model in one organization above moderately testing in multiple organizations. Usually multiple cases is recommended considering generalisability (Yin, 2013). Even though single case is selected, it is still attempted to make the case study generalisable by selecting both an organization and sourcing contracts which are not too unique. The case study is embedded as the contracts will be discussed with different employees. To speak with Yin (2013), multiple units of analysis means multiple sources of evidence and thus, usually, more and richer information, also in view of triangulation and validity.

3.4.2. Technical design

Once more, testing the model in practice requires qualitative, in-depth, information to gain real-life insight. It's preferred to have a pre-selected list of questions, however, it should be possible to add some questions during interviews given a specific context or depending on the flow of the conversation (Saunders et al., 2016). The interview type that meets these requirements is the semi-structured interview. It is preferred over (un)structured interviews as it offers the opportunity to probe meanings and add significance and depth to the data you obtain (Saunders et al., 2016). If during the interviews documents are handed over, these will not be included in the analysis as this kind of research has been completed in the evaluation-step already.

A lot of factors influence the number of interviews to be conducted, e.g. type of research, research strategy, sampling technique etc. Those criteria in combination with the known time constraint, the minimum number of interviews is 5, with a planned duration of approximately 1 hour per interview. Anonymity will be granted and explicitly communicated to the interviewees to prevent socially desirable answers. All interviews will be audio-recorded and transcribed in view of completeness, evidence and analysis. Notes will not be made as this distracts from interviewing and is time consuming. Immediately after the interviews are transcribed, the audio-recordings will be deleted. A copy of the transcript will be sent to the interviewees for approval. They are offered a maximum of 2 weeks to disagree. After approval or after 2 weeks the transcripts are considered correct and will be anonymized. A 6th interview will be planned in case an interview will be cancelled. Some days before

the interview a summary will be sent to the interviewees, so they know what to expect and have the opportunity to prepare.

All interviews will be held within one company, preferably the researchers' employer. If the employer is somehow not an option, a customer or former employee can be selected instead. An existing connection is expected to positively contribute to reliability, bias and the willingness to cooperate. The selected organization should be sufficiently large (>50 employees), have successful outsourcing projects and candidates with expertise-knowledge.

The interviews will be conducted face-to-face in a personal setting to give a feeling of anonymity and confidence. The candidates are selected based on purposive sampling. This technique is a non-probability sampling procedure in which the judgement of the researcher is used to select the cases that make up the sample (Saunders et al., 2016). Certain individuals may have a unique, different or important perspective on the phenomenon in question and their presence in the sample should therefore be ensured (Robinson, 2014). The interviewees are preferably experts in the matter. The ideal situation is a mix of managers and experts, which will give insight from different areas of expertise. The idea is to use sourcing contracts the interviewees are most familiar with to let them feel comfortable and confident. Reasoning from familiar ground is also expected to yield more valuable information about the model.

Research questions

The next step is to formulate the interview questions to collect the right information. These questions should logically derive from the main research question. The full substantiation and the final list of research questions can be found in Appendix 2.

3.4.3. Data analysis

Data analysis will be executed based on the interviews, specifically the transcriptions. The goal of qualitative data analysis is to develop theory from the data and involves a demanding process (Saunders et al., 2016). The data analysis will be executed through (axial) coding and pattern matching. The former is the process of recognizing relationships between categories (Saunders et al., 2016), where pattern matching has the emphasis on exploration and theory building based on the patterns that emerge from the collected data (Eisenhardt, 1989). Finally, the goal is to develop a coherent overview of collected arguments.

Data analysis starts with axial coding, here the essential parts in the interviews will be highlighted. Accordingly the different parts will be sorted, compared and linked to find relevant relationships and perhaps, as Saunders et al. (2016) state, rearranged into a hierarchical form. Here the reason to not use too many questions during the interview will show its advantage as it will make data analysis extremely complex and time-consuming. From the matrix from the coding process pattern matching comes into play. Pattern matching is mostly executed through predetermined variables or theoretical propositions, but in this case it's developed by coding the transcripts. The matrix demonstrates a first overview of the data and from there an iterative process of comparing, matching and labelling will yield a certain number of different categories containing comparable data (like with the card sort). The results will show the model's performance and structure through an overview of arguments.

3.4.4. Reflection

This section will describe the reflection through the terms validity, reliability and ethical aspects. The reflection is to show that the methodology has been set up in a sound and prudent way. In other words, these concepts provide a good view on the quality of the research and the steps taken.

Validity

Internal validity:
According Yin (2013), internal validity is not applicable for exploratory studies. Another explanation of internal validity is the consistency of the findings compared to reality. In this view, the concept of pattern matching can be named. This data analysis technique compares empirically based patterns with predictions and those results can help to strengthen internal validity (Yin, 2013). In other words, systematically matching data yields certain categories, the more data 'confirms' a category, the more it shows consistency of the findings and thus strengthens the internal validity.
Other actions in the research design which contributes to internal validity is to attempt interviewees to interpret questions as intended, ensuring honest answers through discretion/anonymity and reducing researcher bias by means of triangulation (see construct validity).

External validity:
Saunders et al. (2016) explain this concept as the extent to which research results are generalizable and whether findings may be equally applicable to other research settings, such as other organizations. Even though many claim that generalizability is impossible for a (single) case study, the use of purposive sampling, a thorough literature research and documentation from multiple sources strengthen the idea of external validity. As also explained in the conceptual design (chapter 3.4.1.) the selected organization, candidates and sourcing contracts are not too unique. Besides, considering the novelty of the model there's no intention, for now, to generalise the model or the results to a greater audience.

Construct validity:
The extent to which the measurement questions actually measure the presence of those constructs intended to measure (Saunders et al., 2016). According (Yin, 2013) there are three tactics to increase construct validity: Multiple sources of evidence, a chain of evidence and reviewing the draft case study report by key informants.
The initial model was designed based on literature researches from multiple members and redesigned based on documentation from different sources. Eventually the model is validated through interviews with different respondents (purposive sampling). These multiple sources of evidence, known as triangulation, are a strong argument for (construct) validity. During data analysis, pattern matching and axial coding is used. The more detail in this reasoning means that alternative explanations are less likely and thus contributes to construct validity.
The chain of evidence is like reliability, both ensure that the research can be repeated with the same results. As Yin (2013) explains it, the chain of evidence means no original evidence should have been lost, through carelessness or bias, to ensure the evidentiary process can be traced backwards. He recommends to create a database, but this will not be done. However, all information (literature research, interviews, data analysis etc.) will be saved carefully, except the audio recordings.
The third point, to have the draft report reviewed by key informants, is in line of expectation, but is not guaranteed.

Reliability

Reliability is explained as demonstrating that the operations of a study can be repeated with the same results (Yin, 2013). Therefore it is key to have an accurate methodological description of how the study was designed and executed. To meet reliability this research is executed in a systematic way, so this paper contains all details about the literature research, the iterative design process, the validation in practice, a step-by-step data analysis, used techniques etc.
The initial design of the model, based on card sort and document research, might, for example, be hard to replicate as the outcome happens spontaneously during a group meeting. However, the step-by-step process is considered sufficiently rigor, so a reproduction of the process is not expected to give completely different results.

Saunders et al. (2016) distinguishes different kinds of threats to reliability, specifically bias. The tone or non-verbal behaviour of the interviewer might influence the response and bias in the way answers are interpreted. Both are tried to be prevented, e.g. by absolute discretion/anonymity, a test-interview, sufficient preparation, providing relevant information, sending the transcripts afterwards and the familiarity of the researcher with the company. The subject of the interviews does not give reason to suggest that candidates tend to bring partial or too positive information. Observer error or miscommunication is not applicable as questions are designed, asked and interpreted by the same researcher.

Ethical aspects

This topic refers to the appropriateness of behaviour in relation to the rights of those who become the subject of your work, or are affected by it (Saunders et al., 2016). During the research, ethical integrity is always kept in mind, e.g. interviewees are granted absolute discretion and they join voluntarily. Some candidates, as colleagues, might feel 'obligated' to participate, but this is not considered unethical as they always have the right to refuse or withdraw participation. Especially as prior to the interview the interview question and a summary will be sent. After the interviews the transcripts will be sent to the candidates so they can check and approve.
Perhaps needless to say, but the way in which data is stored, used and reported is always done confidentially to avoid, as Saunders et al. (2016) summarize it, embarrassment, stress, discomfort, pain and harm.
During data analysis no personal information, like names and addresses, is present, but this is no reason to be careless. On the contrary, data should always be used and stored confidentially, because honesty enriches the value and reliability of the data. To conclude with Saunders et al. (2016): Lack of objectivity at this stage will clearly distort conclusions and any associated recommendations.

4. Results

The model

On September 6th 2019 the research team had a meeting in Utrecht (*Studiecentrum Open Universiteit*). All 7 researchers and the supervisor were well prepared and brought their IT resources, obtained through the literature research, printed/written on cards. During this meeting the card sort was executed. As planned every card was read out loud and as a team it was discussed if a card should have its own category or should be added to an existing one. Especially in the beginning there were quite some discussions to be sure the categories were formed logically and correctly. Once the cards of a member were sorted, there was an overall discussion about the bigger picture of the different categories, e.g. if certain cards should be moved to another category or if categories should be split or merged. All in all, during the card sort some logical categorization emerged, which was further refined in the final group discussion after all cards were sorted. Initially the plan was to do 2 rounds of card sorting, one for the assets and one for the capabilities. In reality it didn't get to two different rounds, but more like seven rounds, one for all cards per team member. During the sorting as well as during the discussions there was quite some influence from the supervisor. This was very much needed considering his experience and expertise on the matter, especially as for the researchers it was pretty hard to make the right connections and to see the bigger picture.
After the card sort, as planned, every member received its share of categories and matching cards. These cards were listed in a spreadsheet (provided with tags and sources), removed/transferred, examined, subcategorized where possible and accordingly labelled. After the necessary modifications all separate spreadsheets were merged into one spreadsheet, the so-called bookkeeping (for details see chapter 3.1.).

Three weeks later another meeting was scheduled. The time between this meeting and the previous meeting was to collect a useful sourcing document (e.g. IT contract) and place it in the model to test the model's applicability. The results and findings were to be discussed during the meeting. By means of evaluation, the findings could be input to further refine or redesign the model. Unfortunately, the undersigned didn't have a contract as, what seemed a couple weeks later, the company in question was in the middle of an acquisition and therefore the managers were both not accessible and not willing to share contracts at the time. Luckily most of the other researchers did manage to get contracts, so the requirement to collect at least 5 contracts has been achieved. Thanks to the contracts and the discussion about how they were placed in the model, some improvements could be applied to the model. In summary this was decided:
** Infrastructure - Components to be placed under Infrastructure - Hardware*
** Infrastructure - Middleware to be placed under Infrastructure - Software*
** Computer room air conditions, data centres, generators etc. to be placed under Infrastructure - Datacentres (facilities)*
** Business Intelligence (Asset) renamed to Data Analytics - Output*
** All capability-categories to be sorted more logically, based on usability/applicability*

Looking back the evaluation (desks research) didn't have as much impact as initially planned, on the other hand the model was simply more complete than expected and didn't need that much modifications anymore. The evaluation was therefore input for some refinement rather than redesign. All agreed enhancements were applied to the model and the bookkeeping was updated accordingly.

Underneath a simplified version of the final model:

IT ASSETS	Data	Applications	Infrastructure	Cooperation and Communication Systems	Data Analytics - Output
IT CAPABILITIES					
Strategy					
Innovation					
Security					
IT Vendor Management					
IT Processes					
HRM (IT staff)					
End User Training					
Architecture					
Infrastructure					
Applications					
Monitoring					
Data Analytics					

Figure 2: The Model | Simplified version

The full model, incl. subcategories, can be found in Appendix 3.
Due to its size the bookkeeping can be found in a separate attachment (B*ookkeeping.xlsx*).

The interviews

After designing the initial model, the theoretical evaluation and the redesign (refinement), the model has been validated in practice by means of semi-structured interviews. The reasoning for (semi-structured) interviews was substantiated in Chapter 3.4.2. Even though all researchers from the research team had initially designed their own research questions, it was key that during the actual interviews everybody used the same structure and questions. From all seven lists a final list of interview questions was designed, provided by the supervisor. This list of interview questions was very much like the initial list of questions. In short it was divided in 4 chapters/steps: Discuss the sourcing contract in question, place the contract into the model, discuss the model's structure and discuss the model's utility. The full and final interview questions can be found in Appendix 4.

In line with the methodological substantiation in chapter 3.4.2 a total of 5 interviews were conducted. A 6th interview was planned and also utilized as one of the initial 5 interviewers didn't feel himself sufficient expert on the matter and advised to interview someone else instead. For the same reason it was hard to get a contract for the evaluation phase, it also didn't get to a test-interview. Luckily a couple days later the management announced their big news, so eventually the 5 actual interviews could be conducted in time. The usefulness of a test-interview, or in this case lack thereof, was experienced during the first interview already as here it got clear what had to be prepared better, e.g. (the explanation of) certain categories/terms. Luckily the semi-structured interview proved its worth as it gave the opportunity to take some time to gather information, further explain the model or categories and to ask questions in case of doubt. Also, the substantiation for interviewing within one company, preferably the company where the researcher is employed, paid off as people were very willing to cooperate, took their time and gave full insight into the subject. The disadvantage of this was that during the interviews a lot of details and personal and corporate information was supplied, so the transcription had to be made and anonymized with utter care. Eventually all interviewers approved their specific transcript, transcribed and returned to the interviewers according plan (Chapter 3.4.2.). After the approvals the transcripts were fully anonymized and the audio recordings have been deleted. The transcribed interviews are, due to its size, available in a separate attachment: Interviews.docx.

The employer in question is frankly a small company, with about 60 employees in total. This number meets the requirement of the minimum size, but still it was pretty hard to find sourcing projects with sufficient impact. Eventually some interviews were conducted with the managers of some subsidiaries, within the same holding, but the specific subsidiary itself did not have 50 employees or more. Therefore, also, the initial plan to get a mix of candidates from different departments and a wide range of expertise couldn't be fully met. The sourcing contracts in question were mostly similar, in fact logical as it is an IT-firm, where 4 out of 5 interviews were about outsourcing servers and all what comes with it. The contracts had quite an impact for the firm, but the impact on the model was not that evident as it comprised only a certain part of the model. From this viewpoint questions about 'what's missing' and 'what could be added' yielded not that much information, but these outsource contracts did yield valuable information about the model's detailing and completeness. More will follow in the results from the Data Analysis.

Data analysis

After all interviews were conducted, transcribed and approved, the qualitative data collected during the interviews could be analysed. At first all different interviews were merged into one file. All interviews were read from the first to the last word and all valuable information was highlighted, specifically commented with different colours. During this step, as already expected, all valuable information was to be found in both the utility-part and the structure-part of the interview. After this commenting-step all 'worthless', non-commented, text was deleted, this included the text before structure and utility and all text from the interviewer. The remaining text was a big collection of comments. Within every interview the comments were checked if they had the right colour, in other words if they were placed in the correct category or should be moved elsewhere. For example, sometimes when during the interview the main question was read out loud some interviewees started to give some information or opinions already. To not lose this information it was commented and placed under the most suitable research question. Then for every separate interview the comments were sorted per research question, which returned a list of 7 categories per interview according the 3 structure-questions and 4 utility-questions. The last step in the coding process was to combine all comments per research question from all the interviews and yielded one list with 7 categories. During the methodological substantiation it was planned to execute these steps by means of a matrix, in Excel, but in reality it was all done in Word by using the comment-functionality. Now the coding-part was done, the next step was pattern matching. This step looked a lot like the card sort of the IT resources. Every comment within a category was checked critically and accordingly it was decided if it should have its own group or should be added to an existing one. Every group was given a colour, so it was easy to see which comments belonged to the same group. This step also verified the coding part, by checking every comment thoroughly it was like an extra check if it belonged to the right category. Once all comments were grouped, the last step was to supply every group with a short, but suitable title and place it all in a clear overview/matrix. These final results are presented, in short, in figure 3 underneath. The detailed approach and the results of the data analysis can be found in Appendix 5. The (main) conclusions from these findings can be found in Chapter 5.2 (Conclusions.)

STRUCTUUR		
STRUCTUUR A | Zijn gehanteerde begrippen helder:	**STRUCTUUR B| Is het model compleet:**	**STRUCTUUR C | Is het detailniveau voldoende:**
1. Toelichting vereist	1. Bij: Support	1. Goed
2. Uitsplitsing binnen begrippen onduidelijk	2. Bij: AVG (GDPR) / Privacy	2. Fout: Te gedetailleerd, veel wordt niet gebruikt
3. Vendor Management onduidelijk	3. Bij: Verantwoordelijkheid/ bevoegdheid	3. Fout: Infrastructuur te belangrijk
4. Cooperation and Comm. Systems onduidelijk	4. Bij: Prijzen/kosten	4. Fout: Security te algemeen
5. Te technisch	5. Bij: Back-ups	5. Afhankelijk van toepassing
	6. Af: HRM	
	7. Af: Niet alles wordt gebruikt	
	8. Geen opmerking / afhankelijk van toepassing	

NUT			
NUT A | Voorbeeldsituatie waarin model van nut is:	**NUT B | Geeft model info voor discussies/beslissingen:**	**NUT C | Model van nut met eventuele uitbreidingen:**	**NUT D | Aanvullingen/opmerkingen t.a.v. nut model:**
1. Andere partner/leverancier	1. Zet aan tot nadenken (niet-standaard onderwerpen)	1. Nee, model al groot/complex genoeg	1. Nee, model is goed
2. Overzicht dienstverlening leverancier	2. Geeft structuur	2. Nee, model is generiek bedoeld	2. Ja, outsourcen is complex, involveer specialist
3. Leidraad, oriëntatie, niets vergeten	3. Input voor AVG/GDPR	3. Ja, kunnen inzoomen (o.b.v. toepassing)	3. Ja, model aanbieden (leidraad) voor klanten
4. Contractevaluatie	4. Inzage interne zaken en belang/invloed er van	4. Ja, d.m.v. een 2e (veel gedetailleerder) model	4. Ja, model fijnmaziger maken
5. Risicoanalyse		5. Ja, back-up	5. Ja, model niet van toepassing bij native Cloud

Figure 3: Data Analysis | The results (*Dutch*)

5. Discussion, conclusions and recommendations

This chapter contains the discussion of the outcomes, conclusions and recommendations and is therefore structured the same: Discussion - reflection, Conclusions, Recommendations for practice and Recommendations for further research.

5.1. Discussion - reflection

The main goal of this research was to build a model with a specific purpose, i.e. to offer an organization an overview of its IT resources, which in return might support sourcing decisions. The creation of such a model, so called design science, seemed to be an iterative process of (re)design and validation. To be prepared as much as possible, this process was already explained and substantiated in the theoretical framework and the methodology, yet still it was a complex and time-consuming process which had to be executed with utter care. This research perhaps deviates from other researches where propositions or research questions can be answered with a yes, no or a statistical answer. The design-phase of this research yielded a model of which it was presumed that no comparable model existed in the literature, as explicitly stated in Chapter 2. This was indeed confirmed by the literature research. On the other hand, it was expected to find models or frameworks with partial information, e.g. an overview/list of IT assets or IT capabilities, a framework about the relation between them or literature giving insight about the detailing. However, nothing particular could be found, in the end only a certain quantity of separate IT assets and IT capabilities were found. This was not only the case in this research, specifically the literature research from a costs-perspective, but happened to be the case for all members in the research team. The reason for a lack of such a model is hard to tell without knowing everyone's particular motivation, but it looks like researchers tend to focus on specific perspectives or specific sourcing issues instead of, like in this research, to aim for the bigger picture. Westphal, Sohal, and Control (2013) mention something similar when stating that existing studies focus mostly on the selection phase (or pre-outsourcing stage) of the decision-making process.

Eventually the designed model has been validated in practice by executing semi-structured interviews. These interviews yielded valuable information about the structure and utility of the model. Even though there were some points or arguments for potential improvement, the overall impression of the model and its applicability is pretty good. All candidates had the feeling to get a better overview of their IT assets and IT capabilities. At the same time they said that the model gives structure/overview, makes you think about not-obvious topics and gives insight in internal resources/processes and their importance. In fact, according the interviews the model was considered complete enough to actually use it in practice. In theory, this model could therefore be used already by researchers or practitioners in the field of Information Systems. This is where this paper makes a contribution to the existing body of knowledge, because a model or framework like the model designed through this research did not yet exist in the literature. This model was frankly the main purpose for the research, but considering the difficulty of the iterative process it's not obvious that the final outcome will actually be a valuable contribution. In fact the contribution is twofold, as explained in Chapter 1, because the model offers organizations the possibility to get an overview of their IT assets and IT capabilities (and relations between them) and simultaneously it might support organizations to make better sourcing decisions. The former was mostly experienced during the interviews already as the candidates had the feeling to better (over)see which specific IT assets and IT capabilities comprised the sourcing contract/project in question. Even though the word

might, in might support in making better sourcing decisions, is strategically chosen, better sourcing decisions cannot be concluded from this research. It is suggested that a better overview of IT resources leads to better sourcing decisions and even though this sounds very obvious (as also substantiated in Chapter 1), this can't be proven from this model and the interviews, simply because existing contracts have been examined, but the model or its input has not been tested while making sourcing decisions. Also during the interviews the candidates tried to imagine if and how the model could support with sourcing decisions and mostly they had the feeling that the model could indeed contribute, but, again, this is purely based on a feeling during the interview.

The lack of time during this research caused to make some important decisions (all details are substantiated in the methodology), among which for example 5 interviews conducted at the same organization. This is usually not sufficient in view of external validity as it is very hard to generalize from a single case (explained in Chapter 3.4.4). However, as stated in Chapter 3.4.4, considering the novelty of the model there was no direct intention to generalise the model or the results to a greater audience. Yet still the literature research from different viewpoints in combination with an evaluation from multiple sources of evidence and interviews based on purposive sampling strongly demonstrates that the information is not coming from merely one source. Not even to mention that this research is in fact part of a bigger research (team), which means interviews from 7 members with at least 7 organizations. These multiple sources of evidence are in return also key in view of construct validity, especially in combination with the strong chain of evidence. All information has been carefully collected, structured and stored to create that chain of evidence, but also to avoid data loss and to ensure backward traceability. The third tactic in construct validity, key informants reviewing the draft case study report, is the only one not conducted.

Even though some claim that internal validity is not applicable for exploratory research, the internal validity of this research has been increased by means of consistency (as explained in Chapter 3.4.4). Key in this regard is again its iterative process executed by a team of researchers. This paper is an individual work, yet still some key steps during the research were executed as a team. This group performance yielded interchangeability of knowledge, but also generated a bigger amount of data/information. The latter especially proved its use with the creation of the initial model. Instead of data from merely one (literature) research, there was input from 7 researchers. The amount of data in combination with multiple members executing the card sort and (re)design, the more consistency of the findings, which in return strengthened the internal validity.
This process was also crucial for determining the level of detail. The detailing was initially designed during the card sort, but was later refined by adding/deleting categories, subcategorization, removing/relocating resources and evaluation against IT contracts. All steps and actions have been determined through group discussions and mutual agreement. Even though the level of detail has been created systematically, during the interviews most feedback was about the (lack of) detail. For most interviewees the model in general was too big, while at the same time they missed details for some specific items. This can be best explained as the contracts in question comprised only a certain part of the model. These contracts were about outsourcing servers and did not *hit* a lot of organizational processes/departments, but do contain some specific details with a certain importance. These contracts created in fact a cross or T in the matrix, which means that from both the IT assets and the IT capabilities roughly only the centre part was marked. With this information in mind it is reasonable that people tend to think the model is too comprehensive, perhaps not realising the generic purpose of the model, while at the same time they pinpointed a lack of detail in, for example, security. Even though this feedback, more or less, came from 4 candidates, it is still hard to judge the model's level of detail, because the contracts of all 5 interviews were quite

comparable, unfortunately, in contrary of the methodology (Chapter 3.4.2) in which a variety of contracts was aimed for. Besides, the model was initially intended to be applicable for all kinds of IS (IT) contracts, so the level of detail might be good after all, but this can perhaps be better judged in combination with the input from the other 6 researchers.

The input for additions to the model was mostly related to important details in the specific contracts, for example support, GDPR, costs, authorizations and back-up. Feedback concerning what could improve the model's utility was e.g. the ability to drilldown or zoom in and using a 2nd model with more detail. A two-stage rocket, as one of the interviewees literally named it. The reason for the relatively limited amount of feedback is similar to the aforementioned level of detail, because it is hard to see what's missing if you use merely a certain part of the entire model. Another reason is perhaps the way of interviewing. Honestly, during the interviews the flow of the conversation caused it to happen that the model was applied to the contract instead of the other way around. In other words, where the intention was to walk through the contract and place the separate parts in the model, in reality the interviewer and the interviewee walked through the model and checked if categories or combination of categories were applicable or present in the contract. Due to this approach the candidates might have had a bit of a tunnel vision which made it hard to think outside the model, i.e. to find things, whether or not in the contract, beneficial for the model. A possible explanation for this flow of the conversation is perhaps the preparation of the interviewees. Even though the interviewer has given a briefly, oral, explanation of the interview's purposes when inviting the candidates for an interview and accordingly sent a detailed e-mail about a week prior to the interview, yet still the interviewer had the idea that the candidates were not well prepared. Right before and during the interview still a lot had to be clarified. This is perhaps a reason for the limited amount of feedback, because when asking questions about the structure and utility of the model, the candidates had to think of examples out of the blue instead of them being prepared and having readily answers.
The latter could also explain the comments about the complexity of the model, specifically the complexity of certain words or categories. On the other hand, some categories are simply complex or very general, which makes them hard to interpret, even on manager- or C-level. In fact, some were even hard to explain for the interviewer. On second thoughts, until now it has not been explicitly clarified who are the desired users of the model, but based on the fact that IT resources are usually critical to a firm's operations and its strategic direction, gaining insight in those resources by applying this model is presumed not to be done by everybody. Moreover, considering the complexity of the model and its components, as confirmed by the feedback from the interviewees, the model demands sufficient knowledge in the field of (out)sourcing and a firm's IT resources.

All in all this research had a lot of steps where information or input had to be interpreted. This was especially the case for the literature review, card sort, model (re)design, the interviews and the data analysis. Interpretation is usually very sensitive and therefore crucial in view of reliability. In the methodology a lot of preventive actions were described already to avoid bad interpretation and/or bias as much as possible. Key in this regard, a bit like with the different types of validity, is the comprehensive and iterative design process. Nothing was interpreted or concluded solely or without a plan, but always conducted as a group, by use of supportive techniques and/or a detailed reporting of individual steps. As an example, the steps taken during the data analysis is described step by step in Chapter 4.3, but then again, every step is captured and added separately in the attachments, which gives insight in the researcher's thinking and offers reproducibility and (backward) traceability. Also, the ethical aspect has been taken into account. Even though this was not on top of mind during every separate step or action, the research strategy and methodology were designed

with ethical awareness. Most, especially the preventive parts, has been described in the previous chapters already, like the privacy and anonymity of the interview candidates. Afterwards all information was preserved, used, analysed and reported confidentially. Both during the transcription as the data analysis all personal information was removed, which simply means the information (attached) can't be traced back to any specific person.

5.2. Conclusions

Even though organizations are willing to get more insight in their IT resources, an overview or sufficient knowledge is generally missing. Also in the current literature there's no guideline, research or framework to be found which contains a structured overview of IT resources or explains how to get such an overview. The aim of this paper was to fill this gap and the contribution is in fact twofold. On the one hand to add value to the current body of knowledge by providing an overview or insight in IT resources (IT assets and IT capabilities) and how to categorize them, while simultaneously it gives organizations the ability to map their IT resources and make better sourcing decisions from there. The first, providing an overview or insight in IT resources, has been attempted by creating a model, a matrix with both IT assets and IT capabilities. The model was designed and improved through different research steps and eventually it has been tested in practice. The model in general performed very well during the field research as 100% of the candidates had the feeling to get a better overview of their IT assets and IT capabilities. At the same time the candidates said the model gives structure/overview, makes you think about not-obvious topics and gives insight in internal resources/processes and their importance. Despite some potential improvements according feedback, during the interviews the model was considered good enough to be applied in real-life. This means, in theory, that researchers or practitioners in the field of Information Systems could actually start using this model. Therefore this model can be considered a solid base and a valuable contribution to the body of knowledge.
The second contribution of this paper by means of the model contains in fact 2 parts: To give organizations the ability to map their IT resources and to make better sourcing decisions. As described earlier, the model did indeed support in getting a better understanding of IT resources and the relations between them. This basically supports the first part, i.e. the ability to map IT resources. Then, it is suggested that a better understanding of IT resources may support in making better sourcing decisions while at the same time the practical validation yielded information that the model does indeed give a better overview of IT assets and IT capabilities. However, in this specific case one plus one does not simply equal two. All interviewees had the *feeling* that the model gave a better overview of the assets and capabilities, but it was simply out of scope to test whether the model supports in making better sourcing decisions. It could theoretically mean that the model does not significantly contribute or add value when it comes to helpful information to make better sourcing decisions.

At the same time there were some 'remarks' about the model itself. First, the level of detail, both about the model in general as some specific (sub)categories/resources that should be either added, removed or refined. Some candidates advised to keep it simple at first and add the option to drilldown or add a 2nd detailed model. Considering the model's generic nature, it is very hard to judge from this single case whether the model is indeed too detailed or if some specific assets/capabilities should be added or removed. For this more input is needed, e.g. the input from the other 6 researchers from the research group. Second, the complexity of the model. Certain categories were labelled either complex, vague or too general and were therefore hard to interpret. These needed some explanation during the interviews. This can be considered something to improve

about the model. However, IT resources are usually critical to an organization, so gaining insight in those IT resources by the use of this model is presumed not to be done by everybody. In other words, considering the complexity of the model and its components, the model demands sufficient knowledge in the field of (out)sourcing and an organizations IT resources. Third, the multi-functionality of the model. According the interviews it was believed that the model could do more than just mapping IT resources and help organizations getting insight in them. The model could be used for multiple purposes, e.g. contract evaluation, risk assessment and finding a new partner/supplier (find and define differences between them).

5.3. Recommendation for practice

Even though the general impression of the model, based on the practical validation, was good, most feedback was about the model's level of detail. The contracts discussed during the interviews were pretty similar and originating from the same company, therefore it's hard to judge whether the feedback is valuable input or can be ignored given the generic nature of model. To make better conclusions more input is needed. Therefore the recommendation for practice is to conduct interviews at multiple organizations to be sure different types of contracts will be discussed. It is very likely, though, that sufficient information can be distracted already from the papers from the other members of the research team. This information might as well give a better impression if the model is applicable for other types of organizations, purposes and industries. On the other hand, the problem is, perhaps, that specific information about the industries, organizations, contracts and candidates is mostly deleted, which might impede making comparisons and conclusions.

5.4. Recommendations for further research

1. In short this research had some limitations in which time was roughly the biggest factor. Due to the time-constraint some decisions had to be made to keep the research manageable and within scope. Even though the research team of 7 members executed a literature research from different perspectives and it was believed this would cover most, if not all, valuable information, there are perhaps still some perspectives in the literature which might contain valuable information. In this particular paper the grey literature has not been thoroughly checked, let alone for example practitioner's literature. These types of literature could however contain a comparable model or valuable information to further extend or refine the model.

2. Even though the methodology and the model has been designed from a sourcing-perspective, unconsciously this automatically lead to thinking about outsourcing. To be more specific, all contracts discussed during the interviews were about outsourcing, so basically from a customer point of view. One of the interviewees already mentioned that the model could perhaps also be used the other way around, so instead of using it for outsourcing, it can also be applied for insourcing. Once again, this seems logical and that's also how the model was intended, but this is insufficiently tested in practice. Doing so could yield valuable insights or improvements.

3. It has been mentioned more often during this paper, but the level of detail was the most mentioned criticism. This feedback seems fair at first, however, when taking into account the origin of the data, then it's perhaps a bit harder to make conclusions from it. To illustrate, the interviews were all executed at the same company, most contracts discussed were similar to each other and those contracts comprised merely a specific part of the model. With this information in mind it's

hard to judge whether the model's level of detail is indeed not sufficient or if the feedback should be considered *collateral damage* in view of a generic model. Some more input might do well here, specifically discussing different types of contracts at multiple organizations (see Chapter 5.3 as well).

4. To further build on point 3, when asking for specific examples in case of criticism on the level of detail, it was mentioned a couple times that this initial model was perhaps good to get a first impression or rough understanding of the current IT assets and IT capabilities, but there should be an opportunity to further zoom in. The most mentioned example was security. According the interviewees this category was very important while it comprises merely a small part within the model and it did not even have any sub-categories. From this viewpoint they recommended to add a drilldown or to use a 2nd model with much more detail. This would give the opportunity, for those who are interested, to dig deeper and further explore the first impression. This in return could be something to further investigate.

5. During this research the goal of the model is to offer an organization an overview of its IT resources, which in return, might support sourcing decisions. Beside the fact that the model itself can perhaps be further refined, the model might also be suitable for other purposes. During the interviews the model did not only give inside in a firm's IT resources, but simultaneously assisted in evaluating the (IT) contract. Also according feedback from the interviewees the model could be used for multiple purposes, e.g. contract evaluation, risk assessment and finding a new partner/supplier (find and define differences between them). It's perhaps interesting to investigate if the model can indeed be used for other purposes, whether or not with some drastic improvements.

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Appendix 1 | Literature research

In Table 1 all search terms and key words are listed that were used during the literature research. These terms/words were used during an iterative process with the aim to get a relative short list of the most applicable peer-reviewed articles.

Cost related	Sourcing related	Model related
Costs(s)	Source/sourcing	Model(s)
Expense(s)	Outsource/outsourcing	Framework
Expenditure(s)	(IT) Resources	List
Overhead(s)	(IT) Assets	Overview
Cost Management / control	(IT) Capabilities	Summary

Table 1: Search terms

The first search query started with the words 'outsourcing', 'costs' and 'model. This query performed as a basis to get a feeling with the number of results and the type of articles returned. From there the search query was adjusted bit by bit to get less result, but with a high(er) value. The entire overview of search queries, the step-by-step approach, can be found in Table 2.

Search query	# articles Last 5 years	# articles All
(outsourcing) AND (costs) AND (model)	13.267	40.157
(outsource) AND (costs) AND (model)	5.147	14.780
(outsourc*) AND (costs) AND (model)	18.963	54.241
(outsourc*) AND (costs) AND (model OR framework)	20.244	58.460
(outsourc*) AND (cost*) AND (model OR framework)	21.022	60.173
(outsourc*) AND (cost OR costs OR Expense* OR expenditure* OR overhead*) AND (model OR framework)	21.182	60.883
(outsourc*) AND (cost OR costs OR Expens* OR expenditur* OR overhea*) AND (model OR framework)	21.446	61.555
(*sourc*) AND (cost OR costs OR Expense* OR expenditure* OR overhead*) AND (model OR framework)	835.844	2.245.609
(*sourc*) AND (cost OR costs OR Expens* OR expenditur* OR overhea*) AND (model OR framework)	880.927	2.378.266
(sourc* OR outsourc*) AND (asset* OR capabilit*) AND (cost OR costs OR Expens* OR expenditur* OR overhea*) AND (model OR framework)	267.194	667.713
(sourc* OR outsourc*) AND (asset* OR capabilit*) AND (cost OR costs OR Expens* OR expenditur*) AND (model OR framework)	263.501	658.046
(sourc* OR outsourc*) AND (resourc*) AND (asset* OR capabilit* OR (asset* AND capabilit*)) AND (cost OR costs OR Expens* OR expenditur*) AND (model OR framework)	163.478	419.340
(sourc* OR outsourc*) AND (resourc* AND (asset* OR capabilit*)) AND (asset* OR capabilit* OR (asset* AND capabilit*)) AND (cost OR costs OR Expens* OR expenditur*) AND (model OR framework)	163.478	419.340
(sourc* OR outsourc*) AND (resourc* AND (asset* OR capabilit*)) AND (asset* OR capabilit* OR (asset* AND capabilit*)) AND (cost OR costs OR Expens* OR expenditur*) AND (model OR framework) AND (list OR overview)	89.179	228.386
(outsourc*) AND (resourc*) AND (asset*) AND (capabilit*) AND (cost OR costs OR Expens* OR expenditur*) AND (model OR framework) AND (list OR overview OR summary)	2.675	8.555
(outsourc*) AND (IT) AND (resourc*) AND (asset*) AND (capabilit*) AND (cost OR costs OR Expens* OR expenditur*) AND (model OR framework) AND (list OR overview OR summary)	2.675	8.554
(outsourc*) AND (IT) AND (management) AND (resourc*) AND (asset*) AND (capabilit*) AND (cost OR costs OR Expens* OR expenditur*) AND (model OR framework) AND (list OR overview OR summary)	2.593	8.361

(outsourc*) AND (IT) AND (management) AND (resourc*) AND (asset*) AND (capabilit*) AND (cost management) AND (model OR framework) AND (list OR overview OR summary)	-	8.229
(outsourc*) AND (IT) AND (management) AND (resourc*) AND (asset*) AND (capabilit*) AND (Expens* OR expenditur*) AND (cost management) AND (model OR framework) AND (list OR overview OR summary)	-	4.479
(outsourc*) AND (IT) AND (management) AND (resourc*) AND (asset*) AND (capabilit*) AND (cost OR costs) AND (Expens* OR expenditur*) AND (cost management) AND (model OR framework) AND (list OR overview OR summary)	-	4.470
(outsourc*) AND (IT) AND (management) AND (resourc*) AND (asset*) AND (capabilit*) AND (cost OR costs) AND (Expens* OR expenditur*) AND ("cost management") AND (model OR framework) AND (list OR overview OR summary)	41	178
(outsourc*) AND (IT) AND (management) AND (resourc*) AND (asset*) AND (capabilit*) AND (cost OR costs) AND (Expens* OR expenditur*) AND ("cost management OR "cost control") AND (model OR framework) AND (list OR overview OR summary)	38	170

Table 2: Literature Research | Step-by-step approach

Altogether the final search query yielded 170 peer reviewed articles, from which 38 published in the last 5 years. Even though outsourcing is a relative novel phenomenon, it was decided to take a broader look than merely the last 5 years.
After the final search query has been found in the first step, in step 2 all titles of the 170 articles have been read. Based on their titles the articles were judged on usability/usefulness. In other words, does the title suggest that the article contains some kind of model or framework that might be of help for building our model or to figure out which (IT) resources are being outsourced. After this step, a list of 24 articles were selected. These articles were examined more closely by reading the abstract and by scanning if it contains something what might look like a model or framework. If both the abstract looked promising and the article seem to contain a list, model or framework with IT resources, assets or capabilities, only then it was good enough for the next step. This 3rd step returned a list of 8 articles and can be found in Table 3. During the 4th and final step, this shortlist was examined thoroughly by reading the articles in full. Finally, only 5 articles remained (see Table 3) as they contain a model or framework describing (IT) resources, assets and/or capabilities in case of (out)sourcing. The process of literature research is schematically represented in Figure 1.

Figure 1: Literature Research | Schematic display

Nr.	Article and Author(s)	Article Useful?	Model Present?
1	An empirical investigation into the adoption of open source software in information technology outsourcing organizations Ramanathan, L., & Krishnan, S. (2015)	No	No
2	Information technology (IT) outsourcing by business process outsourcing/information technology enabled services (BPO/ITES) firms in India Patil, S., & Wongsurawat, W. (2015)	Yes	No
3	A practitioner's decision model for the total cost of outsourcing and application to china, mexico, and the united states Kumar, S., & Kopitzke, K. (2008)	Yes	Yes
4	Analysis of outsourcing cost-effectiveness using a linear programming model with fuzzy multiple goals Wang, E. J., Chen, Y. C., Wang, W. S., & Su, T. S. (2010)	No	No

5	Horizontal cooperation in transport and logistics: A literature review Cruijssen, F., Dullaert, W., & Fleuren, H. (2007)	Yes	Yes
6	Performance measures and metrics in outsourcing decisions: A review for research and applications Gunasekaran, A., Irani, Z., Choy, K., Filippi, L., & Papadopoulos, T. (2015)	Yes	Yes
7	Outsourcing business and I.T. services: The evidence of success, robust practices and contractual challenges Lacity, M., & Willcocks, L. (2012)	No	No
8	Outsourcing of strategic resources and capabilities: Opposing choices in the commercial aircraft manufacturing Beaugency, A., Sakinç, M. E., & Talbot, D. (2015)	Yes	Yes
9	Triggers and patterns of integration initiatives in successful buyer–supplier relationships Vanpoucke, E., Vereecke, A., & Boyer, K. K. (2014)	No	No
10	Outsourcing relationship management: Accounting in the decision mix Ahmed, M. N. (2018)	No	No
11	A framework for the impact of IT on organizational performance Jacks, T., Palvia, P., Schilhavy, R., & Wang, L. (2011)	Yes	Yes
12	The influence of supplier capabilities and technology uncertainty on manufacturer-supplier collaboration Oh, J., & Rhee, S. (2008)	No	No
13	The role of outsourcing management process in improving the effectiveness of logistics outsourcing Zhu, W., Ng, S. C. H., Wang, Z., & Zhao, X. (2017)	Yes	No
14	An exploration of the determinants for decision to migrate existing resources to cloud computing using an integrated TOE-DOI model Alkhalil, A., Sahandi, R., & John, D. (2017)	Yes	No
15	Creating flex-lean-agile value chain by outsourcing: An ISM-based interventional roadmap Mohammed, I. R., Shankar, R., & Banwet, D. K. (2008)	No	Yes
16	Impact of information technology on vendor objectives, capabilities, and competences in contract electronic manufacturing Perunović, Z., Mefford, R., & Christoffersen, M. (2012)	Yes	No
17	The information technology capability of third-party logistics providers: A resource-based view and empirical evidence from china Lai, F., Li, D., Wang, Q., & Zhao, X. (2008)	No	No
18	An examination of the long-term business value of investments in information technology Shea II, V. J., Dow, K. E., Chong, A. Y., & Ngai, E. W. T. (2019)	No	No
19	Safeguarding the promise of production outsourcing Amaral, J., Billington, C. A., & Tsay, A. A. (2006)	Yes	Yes
20	Deployment of vendor capabilities and competences throughout the outsourcing process Perunovi, Z., Christoffersen, M., & Mefford, R. N. (2012)	Yes	No
21	Protecting the core competencies of a company: Intangible asset security Harvey, M., & Lusch, R. (1997)	Yes	Yes
22	Impact of operational and marketing capabilities on firm performance: Evidence from economic growth and downturns Ahmed, M. U., Kristal, M. M., & Pagell, M. (2014)	Yes	No
23	Evaluating the relationship between IT outsourcing and knowledge management Currie, W., & Pouloudi, A. (2000)	No	No
24	Information systems outsourcing Adam Suhaimi, M., Hussin, H., & Mustaffa, M. (2007)	No	No

Table 3: Literature Research | Steps 3 and 4

* Last 2 columns marked blue: A Yes in both columns, it survived Step 3.

* The Entire row marked blue: Useful article, it survived Step 4.

Eventually these articles and models scored useful during the final step of the literature research:

1. Cruijssen et al. (2007):
   In this article the opportunities (*Table 2* in the article), impediments (*Table 3*), and facilitators (*Table 4*) of horizontal cooperation are listed. These words and /or phrases can be considered assets/capabilities in the topic of (out)sourcing.
2. Gunasekaran et al. (2015):
   In this article the goal is to present a classification of Performance Measures and Metrics (PMM) in outsourcing decisions at the pre-, during-, and post-outsourcing stages. Specifically, a summary of strategic outsourcing engagement decisions and PMMs (Table 1 in the article), a summary of tactical outsourcing engagement decisions and PMMs (Table 2) and Tools and techniques used for PMMs in outsourcing (Table 3). Quite some words and /or phrases can be considered assets/capabilities in the topic of (out)sourcing.
3. Jacks et al. (2011):
   In this article the purpose is a coherent understanding of the firm-level impacts of IT and how to measure it. The used framework categorizes measures of the impact of IT into productivity, profitability, and intangible benefits, while the antecedents of IT impact are categorized into IT resources, IT capabilities, IT/business alignment and external factors. In short it's all bundled in table 7 (VII).
4. Amaral et al. (2006):
   In this article strategies are proposed and analysed for preventing risks and unpleasant surprises when outsourcing production, including procurement activities that can be outsourced (Table 2 in the article) and underlying means, motives, and opportunities (Table 3).
5. Harvey and Lusch (1997):
   This article examines the role intangible assets play in the core competencies of businesses and how these assets can be protected from losing value over time. As a part of this examination this article attempted to offer a framework for protecting those intangible assets and listed a collection of such intangible assets (Table 1 in the article).

Table 2. Opportunities of Horizontal Cooperation

Opportunities of horizontal cooperation	Identified by
Costs and productivity	
Cost reduction	Hennart (1991); Erdmann (1999); Frankel and Whipple (1996); Lambert et al. (1999); Mentzer et al. (2000) ; Simchi-Levi et al. (2000); McLaren et al. (2002) ; Simatupang and Sridharan (2002); Esper and Williams (2003); Nooteboom (2004); Zineldin (2004); Todeva and Knoke (2005); Cruijssen et al. (2006a)
Learning and internalization of tacit, collective, and embedded knowledge and skills	Contractor and Lorange (1988); Kogut (1988); Ohmae (1989); Hennart (1991); Hagedoorn (1993); Mentzer et al. (2000); Simchi-Levi et al. (2000); Todeva and Knoke (2005); Fisher (In press)
More skilled (or more efficient use of) labor force	Mentzer et al. (2000); Simchi-Levi et al. (2000); Nooteboom (2004); Zineldin (2004)
Customer service	
Complementary goods and services	Contractor and Lorange (1988); Barratt (2004); Nooteboom (2004); Todeva and Knoke (2005)
Ability to comply to strict customer requirements/improved service	Ohmae (1989) ; Bowersox (1990) ; Frankel and Whipple (1996); Lambert et al. (1999); Mentzer et al. (2000); McLaren et al. (2002); Simatupang and Sridharan (2002); Esper and Williams (2003); Zineldin (2004); Cruijssen et al. (2006a)
Specialization	Mentzer et al. (2000); Cruijssen et al. (2006a)
Market position	
Penetrating new markets	Contractor and Lorange (1988); Ohmae (1989); Hennart (1991); Hagedoorn (1993); Fearne (1994); Erdmann (1999); Lambert et al. (1999); Simchi-Levi et al. (2000); Nooteboom (2004); Zineldin (2004); Todeva and Knoke (2005)
New product development/R&D	Contractor and Lorange (1988); Ohmae (1989); Hagedoorn (1993); Fearne (1994); Lambert et al. (1999); Zineldin (2004)
Serving larger clients	Bowersox (1990); Simchi-Levi et al. (2000); Cruijssen et al. (2006a)
Protecting market share	Bowersox (1990); Frankel and Whipple (1996); Erdmann (1999); Lambert et al. (1999); Cruijssen et al. (2006a)
Faster speed to market	Lambert et al. (1999); Mentzer et al. (2000); Nooteboom (2004)
Other	
Developing technical standards	Nooteboom (2004); Todeva and Knoke (2005)
Overcoming legal/regulatory barriers	Bowersox (1990); Hennart (1991); Nooteboom (2004); Todeva and Knoke (2005)
Accessing superior technology	Contractor and Lorange (1988); Frankel and Whipple (1996); Lambert et al. (1999); Simchi-Levi et al. (2000); Zineldin (2004)
Enhancing public image	Mentzer et al. (2000)

Table 4: Literature Research | Cruijssen et al. (2007) - Table 2

Table 3. Impediments and Threats for Horizontal Cooperation

Impediments for horizontal cooperation	Identified by
Partners	
Difference in interests, opportunistic behaviour	Stern and Heskett (1969); Mentzer et al. (2000); Simatupang and Sridharan (2002)
Difficulty in finding partners with whom to cooperate	Williamson (1985); North (1990); Hennart (1993); Bleeke and Ernst (1995); Sabath and Fontanella (2002); Cruijssen et al. (2006a)
Difficulty in finding a trusted party/person to lead the cooperation	Mentzer et al. (2000); Cruijssen et al. (2006a)
Difficulty to distinguish oneself towards customers	Cruijssen et al. (2006a)
High coordination costs due to differences in operating procedures	Bowersox (1990); Elmuti and Kathawala (2001); Simatupang and Sridharan (2002)
Risk of losing clientele to competitors/ partners	Cruijssen et al. (2006a)
Determining and dividing the gains	
Difficulty in determining the (monetary) benefits	Razzaque and Sheng (1998); Zineldin and Bredenlöw (2003); Cruijssen et al. (2006a)
Difficulty in establishing a fair allocation of the shared workload	Cruijssen et al. (2006a)
Difficulty in establishing a fair allocation of the benefits	Lambert et al. (1999); Bartlett and Ghoshal (2000); Mentzer et al. (2000); Gibson et al. (2002); Zineldin and Bredenlöw (2003); Cruijssen et al. (2006a)
Negotiation	
Disagreement over the domain of decisions	Stern and Heskett (1969); Barratt (2004)
Unequal bargaining positions (e.g., due to size differences)	Contractor and Lorange (1988); Bleeke and Ernst (1995); Zineldin and Bredenlöw (2003); Häkkinen et al. (2004); Cruijssen et al. (2006a)
Coordination and ICT	
High indispensable ICT costs	McLaren et al. (2002); Stefansson (2002); Gunasekaran and Ngai (2003); Cruijssen et al. (2006a)
High additional coordinating and controlling costs	Contractor and Lorange (1988); Mentzer et al. (2000); McLaren et al. (2002); Zineldin and Bredenlöw (2003)
Loss of control	Razzaque and Sheng (1998); Lambert et al. (1999); Elmuti and Kathawala (2001); Zineldin and Bredenlöw (2003)

Table 5: Literature Research | Cruijssen et al. (2007) - Table 3

Table 4. Facilitators of Horizontal Cooperation

Facilitators of horizontal cooperation	Identified by
Information sharing	
Integration of information	Moss-Kanter (1994); Mentzer et al. (2000); Whipple and Frankel (2000); McLaren et al. (2002); Simatupang and Sridharan (2002); Barratt (2004); Zineldin (2004)
Sharing of performance data	Gibson et al. (2002); McLaren et al. (2002); Barratt (2004); Zineldin (2004)
Transparency, ''open book'' policy	Bowersox (1990); Mentzer et al. (2000); Gibson et al. (2002); Barratt (2004)
Incentive alignment	
Trust	Bowersox (1990); Mentzer et al. (2000); Whipple and Frankel (2000); Zineldin and Bredenlöw (2003); Barratt (2004); Hadjikhani and Thilenius (2005); Todeva and Knoke (2005)
Common interest and commitment	Moss-Kanter (1994); Mentzer et al. (2000); Simatupang and Sridharan (2002); Zineldin (2004); Hadjikhani and Thilenius (2005)
Mutual help and interdependence	Bowersox (1990); Moss-Kanter (1994); Kumar and van Dissel (1996); Mentzer et al. (2000); Gibson et al. (2002); Zineldin (2004)
Shared customer(s)	Lambert et al. (1999)
Integrity and a cooperative culture	Moss-Kanter (1994); Gibson et al. (2002); Barratt (2004); Zineldin (2004)
Relationship management and contracts	
Comparable partners, compatibility, strategic fit	Moss-Kanter (1994); Lambert et al. (1999); Whipple and Frankel (2000); Gibson et al. (2002); Zineldin (2004)
Clear expectations	Bowersox (1990); Mentzer et al. (2000); Whipple and Frankel (2000); Zineldin (2004)
Leadership	Mentzer et al. (2000); Todeva and Knoke (2005)
''Open'' contract	Moss-Kanter (1994); Mentzer et al. (2000); Gibson et al. (2002)
Conflict resolution management	Gibson et al. (2002); Zineldin (2004); Todeva and Knoke (2005)
Information technology	
Message-based systems (fax, email, sms, EDI, XML)	Kumar and van Dissel (1996); McLaren et al. (2002); Esper and Williams (2003)
Market based systems (hubs, portals, auctions)	McLaren et al. (2002); Granot and Soši (2005)
Collaborative planning-based systems (CPFR, CTM)	Kumar and van Dissel (1996); McLaren et al. (2002); Esper and Williams (2003)
Prior cooperative experience	Lambert et al. (1999); Todeva and Knoke (2005)
Other	
Physical proximity	Lambert et al. (1999)

Table 6: Literature Research | Cruijssen et al. (2007) - Table 4

Strategic outsourcing engagement decisions and PMMs

Pre-outsourcing stage		
Type of PMMs	*Tangibles*	*Intangibles*
Financial	Total supply chain management cost, sales, return on asset, return on equity, return on sales, return on investment, client and supplier investments, transaction costs, supplier related costs, profitability, productivity, IT productivity, cost of sharing and cost of running, market volatility.	Financial strength, research and development.
Non-Financial	Production facility, procurement facility, location, commonality of products, market uncertainty, requirements' uncertainty, customer service level, productivity, quality, reliability, speed to market, access to outside skills and experience, degree of expertise, responsiveness, flexibility, safety and environment, time to design and produce new products, customer satisfaction, environmental stability, value difference to quantity, risk of losing organizational competencies, alliances' risk perspectives, extent of substitution, firm size.	Brand, industrial and cultural environment, goodwill, opportunistic behaviour, intellectual property law, inter-organizational relationships, loss of local and tacit knowledge, innovativeness, social exchange, competitor orientation, organizational ability, opportunities, alignment of capacity and needs, morale problems, loss of management control, knowledge capital, knowledge acquisition, efficient governance, strategic alliance, core competencies, cultural conflict, reputation, degree of control and trust.
During-outsourcing stage		
Financial	Profitability, higher transaction costs, supplier-related costs, sales growth, cost reduction.	Financial strength.
Non-Financial	IT infrastructure, rate of sales of new products, service performance, inventory turns, number of new products launched, long-term partnership contracts, access to outside skills and experience, alliances' risk perspectives, commitment, quality of service.	Environmental dynamism, knowledge and know-how, contract control, environmental heterogeneity, inter-organizational relationship, innovation, social exchange, ease of working, market conditions, competitor orientation, cultural conflict, trust, knowledge management and acquisition.
Post-outsourcing stage		
Financial	Cost efficiency, profitability, productivity, switching costs, adaptation costs.	Complexity of governance structures.
Non-Financial	Reliability, responsiveness, infrastructure, flexibility, market share, difficulty in vendor change, risk, loss of control over outsourcing process, loss of control over quality, loss of the ability to protect product confidentiality.	Skills and knowledge, vendor support, familiarity with outsourcing strategy, utilization of outsourcing strategy, trust, reputation, value of the outsourcing relationship, organizational communication, employee morale, political issues.

Table 7: Literature Research | Gunasekaran et al. (2015) - Table 1

Table 2
Summary of tactical outsourcing engagement decisions and PMMs.

Tactical outsourcing engagement/decisions and PMMs **Pre-outsourcing stage**		
Type of PMMs	*Tangibles*	*Intangibles*
Financial	Manufacturing costs, distribution costs, costs of negotiation, costs of monitoring and supervising external contractual parties, cost of performance reduction, client investment, supplier investment, profitability of bought volume, cost adherence, transaction costs, price, productivity, distribution cost, inventory cost, set-up cost, cost of defective parts, shortage cost, material handling cost.	Cost of process and production innovation.
Non-Financial	Rate of stock-outs, fill rate, order fulfilment time, information accuracy, information timeliness, delivery performance, design revision time, prototyping time and level of technology, support in process design and engineering, project quality, precision of the contract, involvement in design, volume of jobs to be outsourced, production plan, property rights, number of contracts, partnership quality, security issues, product functionality, market leadership, customer service level, commitment, customer satisfaction, scalability.	Core competencies, manufacturer-3PL relationships, market opportunities, collaboration, employment effect, trust, information technical capability, sharing, communication quality, process/product innovation, sharing knowledge, teamwork, cooperation, intellectual capital, vendor/client trust, degree of expertise, goal setting and cultural blending, outsourcing effectiveness, formalizing sourcing process, information sharing, technical and managerial capability, access to new technology/skills, grow in-house expertise, responsiveness, enhance position in value chain, vendor selection capability, motivation of employees on the shop floor, loss of control.
During-outsourcing stage		
Financial	Cost of monitoring and supervising external contractual parties, cost of poor scheduling and control, cost of poor quality components and parts, cost of defective parts, shortage or products cost, productivity, material handling cost.	Cost and benefit of employee motivation and teamwork, cost and benefit of employee morale, cost and benefit of poor training and motivation, hidden idle-time cost of employees, lost capacity.
Non-financial	Rate of stock-outs, safety stock level, capacity planning and resource allocation, lead-time, cycle time, handling of exceptions, scheduling flexibility, component standardization, differentiation, real-time monitoring, production process control, customer satisfaction, human capital, project quality, partnership quality.	Collaboration, employment effect, trust, information technical capability, information sharing, communication quality, process/product innovation, sharing knowledge, technological integration capability, buyer-supplier interaction, team work, cooperation, motivation of employees on the shop floor, relationship with supplier, intellectual value, management capability, skills shared.
Post-outsourcing stage		
Financial	Cost efficiency, profitability, productivity, switching costs, adaptation costs, transaction costs, ROI.	Client's control over the vendor, service performance.
Non-financial	Customer satisfaction, infrastructure, project quality, quality improvements (process and service delivery).	Information sharing, inter-firm adaptation, goal setting, learning experience, communication quality, cultural blending, operational integration, employee morale, employee motivation, teamwork, shared effort for operational improvement.

Table 8: Literature Research | Gunasekaran et al. (2015) - Table 2

Table 3
Tools and techniques used for PMMs in outsourcing.

Level of engagement	Financial/ non-financial	Tools/techniques used in outsourcing performance measurement		
		Pre	During	Post
Strategic	*Financial*	Game-theoretic models, risk assessment, real options approach, multi-criteria decision techniques, transaction cost economics, agency theory, mixed-integer model for bidding, fuzzy goal programming, stochastic and econometric models, DSS.	Game-theoretic models, multi-criteria decision techniques, transaction cost economics, financial and econometric models, DSS, risk assessment.	Multi-criteria decision techniques, transaction cost economics, DSS.
	Non-financial	Game-theoretic models, fuzzy logic and expert systems, multi-criteria decision techniques, mixed-integer model for bidding, Analytical Network Process (ANP), TCE, DSS, multi-objective 0-1 programming, multi-attribute utility theory, stochastic dynamic programming.	Game-theoretic models, risk assessment, multi-criteria decision techniques, DSS.	Multi-criteria decision techniques, transaction cost economics, DSS.
Tactical	*Financial*	Stochastic programming, goal programming, optimization problem, simulation, game theoretic modelling, TCE scheduling problem, non-linear mixed integer programming models, multi-criteria decision making models (AHP).	Game theoretic modelling, multi-criteria decision-making models, real options, Ant algorithm, non-linear programming (newsboy vendor problem).	Game theoretic modelling, multi-criteria decision-making models.
	Non-Financial	Game theoretic models, scheduling problem, stochastic programming model, simulation, non-linear programming model, capacity planning models, inventory models, simulation models.	Nash equilibrium models, game theoretic models, stochastic programming, TCE, Ant algorithms.	Game theoretic modelling, stochastic programming, multi-criteria decision-making models.

Table 9: Literature Research | Gunasekaran et al. (2015) - Table 3

Productivity	Profitability	Intangible benefits
Agility	Bank profitability	Customer satisfaction (goodwill)
Bank productivity	Banking industry performance	Dynamism, longevity, visibility, reputation
Business effects of IT	Business unit performance (sales growth, profits, financial performance, return on investment)	Human resource management
Business process outcomes	Client extra costs	Online commitment through number of downloads
Competitive flexibility	Competitive advantage	Public image/client loyalty
Firm productivity	Competitive cost advantage	Quality improvement
Hospital output	Corporate performance	Social productivity
Information effectiveness	Earning variability	
IT business value	Financial benefits (revenue and profit)	
Labor productivity	Financial performance	
Medical labor productivity	Firm performance (market value)	
Net benefits	Impact on procurement	
Operational efficiency	Impact on sales	
Operational impact of IT use	Liquidity and investment capacity	
Organization business process performance	Long-term profitability	
Organizational performance	Market value	
Output productivity	Net financial benefits	
Performance	Net sales or revenue	
Plant performance	Online financial performance	
Process efficiency	Process performance (economic)	
Process performance (operational)	Profit margins	
Production output	Profits (first mover)	
Service performance	Sales growth	
Sourcing leverage	Sales performance	
Strategic benefits and competitive performance	Stock price returns	
Strategic impact of IT use	Stock return variability	
Supplier network performance	Supply channel performance	
Systems performance	Coordination and production costs	
Tactical impact of IT use	Market share	
Value added		

Table 10: Literature Research | Jacks et al. (2011) - Table 3

Action	Physical	Informational	Financial
Planning	(1) Planning physical flows, e.g., determining materials requirements	(2) Planning informational flows, e.g., forecasting demand	(3) Planning financial flows, e.g., negotiating terms with suppliers
Execution	(4) Executing physical flows, e.g., receiving goods	(5) Executing informational flows, e.g., placing purchase orders	(6) Executing financial flows, e.g., paying suppliers
Management	(7) Managing physical flows, e.g., rebalancing inventory across locations	(8) Managing informational flows, e.g., identifying exceptions and deviations from plan	(9) Managing financial flows, e.g., monitoring costs

Table 2: Procurement activities can be described along two dimensions, by their flows (physical, informational, or financial) and by their actions (planning, execution, or management). The resulting cells define nine sets of procurement activities that OEMs can outsource to some degree, individually or in combinations.

Table 11: Literature Research | Amaral et al. (2006) - Table 2

Procurement activities	Basis of opportunity	Means-motive-opportunity hazards
(1) Planning—Physical		
Determine the capacity and materials to support manufacturing	Deciding how much to order from whom is somewhat subjective.	Self-serving or myopic materials choices
(2) Planning—Informational		
Forecast demand and potential supply constraints	CMs can conceal poor forecasting within the inevitable errors.	Forecast manipulation
(3) Planning—Financial		
Select suppliers and negotiate terms and conditions	The OEM may lack visibility into the financial relationship between the CM and suppliers.	Self-serving or myopic supplier selection and engagement
(4) Execution—Physical		
Receive goods, assess quality, track inventory, and pick and stage parts for assembly	The CM gains physical possession of materials, whose location and status may be unknown to the OEM.	Diversion of materials
(5) Execution—Informational		
Place purchase orders and adjust quantity or timing	The OEM might provide guidelines but does not oversee every order the CM places.	Violation of purchasing intent
	The OEM cannot review the reasonableness of order changes with suppliers.	Inconsiderate treatment of suppliers
(6) Execution—Financial		
Pay suppliers, receive rebates or reimbursements, and maintain transaction records	The OEM lacks visibility into the timing of cash flows.	Delaying of payments
	The CM can obscure individual transactions or charges.	Incorrect billings
	The CM can use knowledge of OEM supplier pricing to negotiate similar prices for itself or competing OEMs.	Exploiting supplier pricing information
	Preferential treatment from suppliers can be decoupled from specific purchases.	Extracting noninvoiced concessions from suppliers
(7) Management—Physical		
Balance inventory across locations and expedite shipments from suppliers	The OEM lacks visibility into the inventory levels at assembly facilities around the world.	Inappropriate inventory balancing and freight expediting
(8) Management—Informational		
Identify deviations from plan and request contingent and corrective actions	The CM owns the raw data about procurement decisions and supplier performance, providing the OEM with only summary reports.	Manipulating data and metrics
	Deviations from plan are difficult to anticipate and write into contracts, and corrective actions may be judgment calls.	Negligence in responding to problems and issues
(9) Management—Financial		
Monitor costs and asset utilization, and invest to strengthen supply base	Especially during crises, OEM managers may fail to enforce requirements for authorization of spending and deviations from contract.	Phantom charges
	By contract, CMs can often pass on increases in materials prices and must share reductions, but their promptness is difficult to monitor.	Selective disclosure of changes in materials costs
	The competence of the CM is difficult to determine, especially the knowledge and skill of its employees.	Underinvesting in support resources

Table 3: Outsourcing each of the nine sets of procurement activities creates specific means and opportunities for a CM to violate the OEM's intentions. The motive for doing so begins with the presumption that a CM will serve its own interests first. The magnitude of each means-motive-opportunity hazard depends on the number and nature of the activities outsourced, the amount at stake, and the business controls established.

Table 12: Literature Research | Amaral et al. (2006) - Table 3

Table 1 Intangible Asset Location

Intangible Asset Categories	*Location Internal*	*External*
Organizational		
corporate reputation		✔
historic market positioning		✔
adaptive capabilities (cope/change)	✔	
core competencies (competitive relative advantage)	✔	
quality/quantity of earnings	✔	
strategic plan	✔	
corporate culture (learning)	✔	
Marketing		
access to markets/segments		✔
external relationships (suppliers/distributors)		✔
broad awareness/reputation/loyalty		✔
market share by segment		✔
product development/deletion processes	✔	
product positioning		✔
recognized/pre-emptive strategic market position		✔
Legal		
patents	✔	
intellectual property rights	✔	
long-term customer/channel agreements		✔
trade secrets	✔	
trademarks		✔
logos		✔
copyright and registered designs	✔	
licences	✔	
Personnel		
quality of workforce	✔	
level/quality of training	✔	
access to quality labor pool		✔
esprit de corps/teamwork	✔	
corporate culture	✔	
loyalty of workforce	✔	
quality board of directors	✔	
Infrastructure		
A. Information System		
databases	✔	
customer data	✔	
computer/information system	✔	
accounting controls	✔	
operating controls	✔	
data/reports in decision format	✔	
speed/accuracy of information collection/ analysis/dissemination	✔	
B. Production Systems		
research and development	✔	
production processes/systems	✔	
new technology/new processes	✔	
manufacturing control	✔	
technological relative advantage	✔	

Table 13: Literature Research | Harvey and Lusch (1997) - Table 1

Appendix 2 | Research Questions

Underneath the substantiation about the need for sound research questions and substantiation for the research questions itself. The final list of research question can be found thereafter, on the next page.

To have a clear and structured interview, the interview has been split into different topics/steps. This structure is created based on visualizing how the interviews should be conducted (a natural flow) in combination with the aim for collecting the right information from the right questions. A benefit of the different topics is that it helps not to slowly fall into detail, but always keep focus on the main research. Both in the topics as in the research questions itself the sequence was very much thought through to make the interview a logical and smooth conversation.
Considering the explorative nature of this research, the research questions are preferably open questions as this gives the ability to collect in-depth information, will avoid bias and encourages the interviewees to reply as they wish (Saunders et al., 2016). Most of the (open) questions start with 'why' and 'what'. On the other hand, it is important to avoid too many theoretical concepts (jargon) or, if used, ensure that both the interviewer and the interviewee have the same understanding. The semi-structured interview gives the opportunity to ask follow-up questions during the conversation if there's reason to believe more information is needed. The number of research questions is kept within boundaries to avoid valuable interview time being spilled on uncertain and aimless questions. Besides, some questions are specifically designed stemming from the so called 'five whys technique'. This technique relates to the principle of systematic problem-solving, complete honesty in answering the questions and the determination to get to the bottom of problems (Serrat, 2017).

All in all the research has been divided into these steps, incl. substantiation for the questions. Step I starts with the introduction of the subject to get acquainted with the selected sourcing project. These questions are not very valuable in view of the model's applicability, but are strictly designed to feel comfortable and to get the conversation going. Questions in this topic introduce the sourcing project and it's use [1] as well as the initial purpose and expectations of the project [2]. This part is supposed to take only a few minutes.
In step II the model will be implemented, or to be more precise, the contract is placed into the model. This will make the interviewee familiar with the model and the way it works. Accordingly, the research questions are based on the applicability of the model. At first you want to know if the model is easy to use [3] and accordingly you want to discover the general impression of the interviewee, in other words what (s)he thinks about the model. From this viewpoint the first question aims to find out the model's general usefulness [4]. This question is basically the main question, so the subsequent questions are intentionally designed (based on the five whys) to get the interviewees talking to distract as much useful information from this topic as possible. These follow-up questions retrieve the argumentation about possible insight in the firm's IT resources [5], relationships between assets and capabilities [6], the level of detail [7], the support in decision-making [8] and meeting expectations [9]. All questions, also in the next step, contain or are followed by a 'why' to enforce reasoning of the candidate.
At last, step III, is about recommendations and enhancements. Questions logically deriving from this viewpoint focus on strengths and weaknesses of the model [10], possible improvements [11], missing parts [12] and future use [13]. At last, the final question does not have a clear goal in view of data collection, but simply gives the interviewee the opportunity to share whatever he wants [14].

I. Introduction

1. In which (out)source project are you most familiar/involved and what does it do?
2. Why was the project initially developed and does it meet expectations?

II. The model | Insert the project and applicability

- *Insert the (out)source project into the model*

3. Could the (out)source project be easily placed into the model?

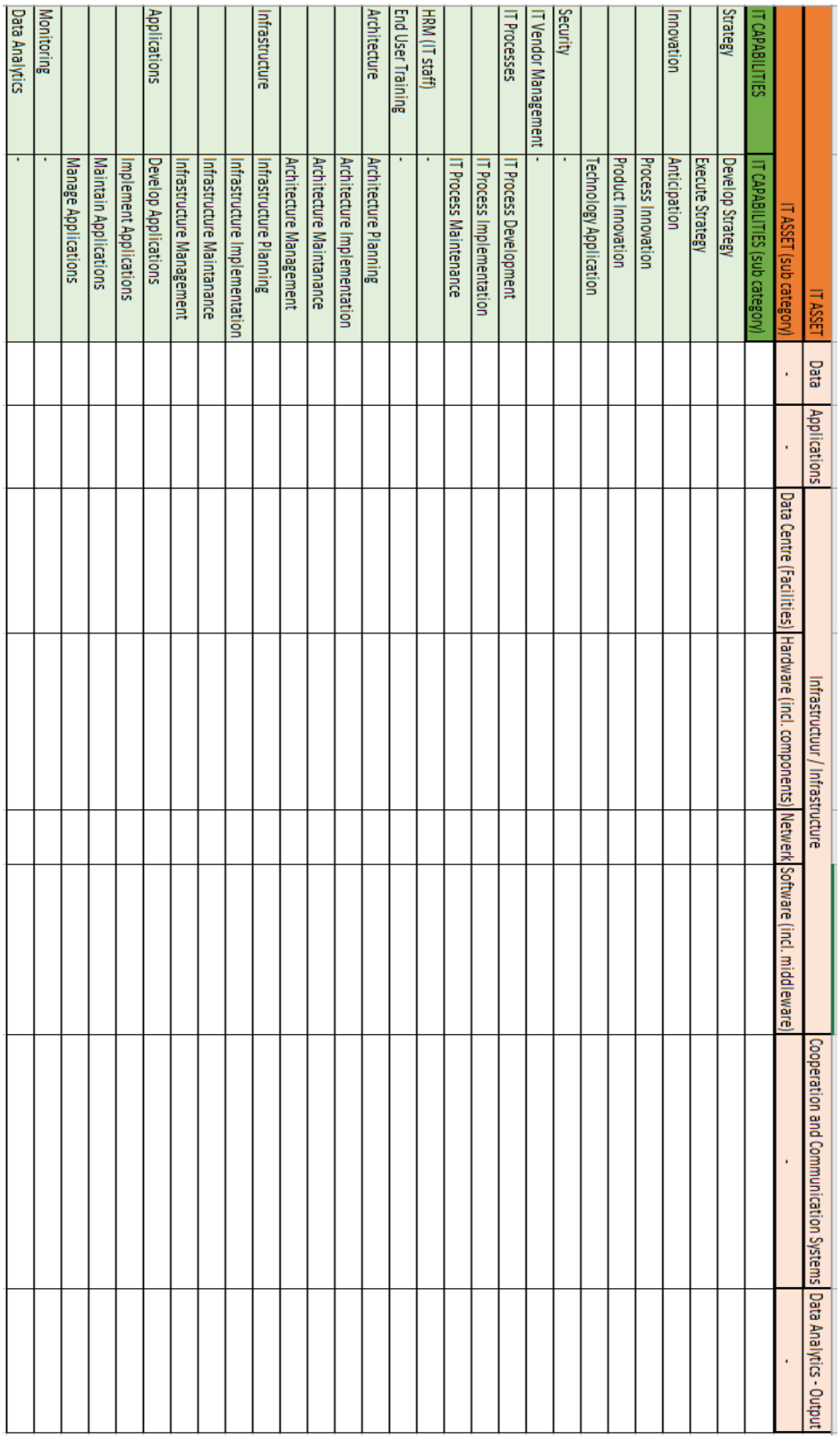
4. Imagine the project is to be designed/implemented. Do you think the model is useful? Why?
5. Does the model provide insight in available and potential IT resources? Why (not)?
6. Does the model support in finding relations between assets and capabilities? Why (not)?
7. What do you think about the level of detail? Please explain why!
8. Why do you think the model could contribute to or support sourcing decisions?
9. Does the model do what you expected from it? Can you explain why?

III. The model | Enhancements and recommendations

10. What are the strengths and weaknesses of the model? Please explain why?
11. What should be improved/enhanced about the model? Why do you think so?
12. Are there important IT resources missing in the model? Which ones and why?
13. Why would you possibly use this model in future or recommend it to others?
14. Do you have any other remarks or recommendations you want to share?

Appendix 3 | The Model

Underneath the final model:



IT CAPABILITIES	IT CAPABILITIES (sub category)	IT ASSET	IT ASSET (sub category)	Data	Applications	Infrastructuur / Infrastructure				Cooperation and Communication Systems	Data Analytics - Output
				-	-	Data Centre (Facilities)	Hardware (incl. components)	Netwerk	Software (incl. middleware)	-	-
Strategy	Develop Strategy										
	Execute Strategy										
Innovation	Anticipation										
	Process Innovation										
	Product Innovation										
	Technology Application										
Security	-										
IT Vendor Management	-										
IT Processes	IT Process Development										
	IT Process Implementation										
	IT Process Maintenance										
HRM (IT staff)	-										
End User Training	-										
Architecture	Architecture Planning										
	Architecture Implementation										
	Architecture Maintanance										
	Architecture Management										
Infrastructure	Infrastructure Planning										
	Infrastructure Implementation										
	Infrastructure Maintanance										
	Infrastructure Management										
Applications	Develop Applications										
	Implement Applications										
	Maintain Applications										
	Manage Applications										
Monitoring	-										
Data Analytics	-										

Figure 2: The final model

Appendix 4 | The Interview

Underneath the final interview questions (in Dutch):

Voorbeeld
Hoofdvraag: *Geef een voorbeeld van een eerder genomen outsourcingsbeslissing waarbij je betrokken bent geweest*
Hulpvragen:

a. Geef aan wanneer de zaak speelde
b. Waarom werd overwogen om te outsourcen
c. Welke organisatieonderdelen waren er bij betrokken
d. Hoe verliep het proces om te komen tot de beslissing
e. Welke informatie was beschikbaar voor het nemen van het besluit
f. Welke besluit werd genomen
g. Hoe viel het besluit in de praktijk uit
h. Welke impact had het besluit op de zaken die niet werden geoutsourcet
i. Heeft de organisatie nu last of gemak van het besluit.

Is het mogelijk om in het model aan te geven welke (combinaties van) IT- capabilities en assets betrokken waren bij het geval?

Beoogd resultaat: Herleven van de situatie bij voorbereiden gesprek en bij aanvang van het gesprek, zodat de geïnterviewde en de onderzoeker een en dezelfde uitgangssituatie hebben en dit kunnen relateren aan het model.

Structuur
Hoofdvraag: *Is het model hanteerbaar*
Hulpvragen:

a. Zijn de gehanteerde begrippen helder, wat kan er beter en waarom?
b. Denk je dat het model compleet is, wat moet er bij, wat kan er af, en waarom?
c. Is het detailniveau van de informatie voldoende, waarom (wel – niet)?

Beoogd resultaat: De visie van de geïnterviewde op de hanteerbaarheid van het model.

Nut
Hoofdvraag: *Op welke manier en waarom kan het model van nut zijn bij beleid, proces en beslissingen m.b.t. outsoursing*
Hulpvragen:

a. Kun je een voorbeeld geven van een situatie waarin het model nuttig kan zijn?
b. Geeft het model informatie die van nut kan zijn bij discussies en beslissingen m.b.t. outsourcing? Zo ja, welke en waarom?
c. Kan het model met eventuele uitbreidingen van nut zijn? Zo ja, welke en waarom?
d. Heeft u andere aanvullingen of opmerkingen t.a.v. het eventueel nut van een dergelijk model?

Beoogd resultaat: De visie van geïnterviewde op de wijze waarop het model van nut kan zijn bij outsourcebeslissingen.

Appendix 5 | Data Analysis

In this appendix all sources and evidence related to the data analysis can be found. Be informed that the entire data analysis was executed in Dutch, so all attached information in this appendix is in Dutch as well. Some information/documents were not attached and the reason for this has been given. If this information is needed anyway, this can be provided on request by the undersigned.

5.1 Step 1, 2, 3 and 4 | Interviews, commenting and coding

At first all interviews were placed in one file. This file is, due to its size, available in a separate attachment: *Interviews.docx.*
The next steps is where all necessary information is commented (2) and all non-commented information is deleted (3). These documents have not been attached or added in the appendices as it is a huge file, just like the one with all interviews. Besides it does not add significant information, the commented parts can be found in step 4 as well.
The 4th step is where all comments where sorted/coded based on the research questions. Here an overview:

Interview 1 | *Respondent 1 | Bedrijf A (Subsidiary A)*

STRUCTUUR A:
RESPONDENT1: Niet altijd.
RESPONDENT1: Ja, kijk, dit is wel heel abstract. Dan moet je er wel goede voorbeelden bij kunnen noemen, wat je daar nou onder verstaat onder die termen.

STRUCTUUR B.
RESPONDENT1: Staat er iets in over support? Ja, kijk, als het maar ergens onder zit dan is het goed, dat is belangrijk.
RESPONDENT1: Dat ene is tegenwoordig heel belangrijk, die databescherming via de AVG.
RESPONDENT1: HRM vind ik beetje een vreemde eend, snap ik niet helemaal, hoe dat hiertussen...
RESPONDENT1: Ik weet niet of dat in dit model terugkomt, maar dat [installatierechten | administrator-rechten] zijn belangrijke overwegingen voor outsourcen.

STRUCTUUR C.
RESPONDENT1: Ja, kijk, dit is natuurlijk vanuit literatuur, dan heb je dit natuurlijk op een heel hoog niveau. Het gaat bij mij, laat maar zeggen, op uitvoeringsniveau, als dat maar ergens tussen valt, dan zit het er in.
RESPONDENT1: Dat snap ik, maar dan zit het [support] er denk ik mij wel in. Dan lijkt ie mij wel compleet. Ik heb dan geen dingen gehoord die er niet in zitten.

NUT A.
RESPONDENT1: Stel je voor, wat ik noem, dat puntje dat ze dat niet oplossen. En je wilt naar een andere partij gaan kijken, dan kan dit wel nuttig zijn.
RESPONDENT1: Ja, kijk, er staan gewoon dingen in dat ik denk daar heb ik destijds niet aan gedacht om dat uit te vragen aan die kant. We hebben gewoon puur gekeken naar hoe werkt het. Wat wij willen werkt dat en hoe zij dat aanbieden, daar heb ik nooit naar gevraagd, want dat ligt niet bij ons. Het is prima gegaan, het is niet dat we er ontevreden over zijn, maar je kunt er wel gerichter naar vragen, dan heb je er meer informatie over en kun je bedrijven of aanbieders naast elkaar gaan leggen.

NUT B.
RESPONDENT1: Ja, dat [model van nut] sowieso. Daar staan dingen in, dat je denkt, die je kunt uitvragen, want dat hebben we nu natuurlijk niet gedaan. De techniek die erachter is, of wat hun beleid op bepaalde dingen is. Dus ik hoor hier wel dingen, dat je denkt van ja, misschien moeten we dat de volgende keer even bij hun uitvragen. Maar dit kun je wel naast een contract leggen en kijken staat alles er in beschreven.

RESPONDENT1: Ja, dat denk ik wel ja. Er staan wel dingen in waar je in eerste instantie niet aan denkt om te vragen.

NUT C.
INTERVIEWER: Precies, vooral die Capabilities, als je die beter uitlegt, wat wat is, eventueel met een voorbeeld, dan wordt het wel duidelijker.

NUT D.
RESPONDENT1: Nee, ik heb er verder geen opmerkingen over.

Interview 2 | *Respondent 2 | Bedrijf A*

STRUCTUUR A.
RESPONDENT2: Nou, ik vind zelf het op een zeker moment lastig worden, wat dan precies het verschil is tussen, bij wijze van spreken als je naar architectuur kijkt, planning, implementatie, maintenance, dat snap ik. Maar wat is dan management?

STRUCTUUR B.
RESPONDENT2: Nou, ik denk als je er zo naar kijkt dat het wel compleet is. Ik weet niet of er iets af kan, maar als je veel voorbeelden neemt waar je vakjes leeg laat, dat die er dan af kunnen, omdat je dan die niet raakt.
RESPONDENT2: En aansprakelijkheid staat hier niet echt in he.

STRUCTUUR C.
RESPONDENT2: Ja, ik denk, als je het voorbeeld wat wij nu pakken, dan is het model beperkt hanteerbaar, omdat wij adresseren niet zeg maar de hele matrix.
RESPONDENT2: Dus als je dan naar zo'n model kijkt, je reflecteer terug, dan denk je ja, ik heb die stappen allemaal wel gedaan. Dus al die onderwerpen die heb je echt wel in je evaluatie meegenomen. Alleen je loopt ze niet zo, in ieder geval ik niet, en dat heeft misschien, als je hele grote projecten doet misschien wel, maar je loopt ze niet zo, echt zo, zo stap, stap, stap door.
RESPONDENT2: En je kunt altijd zeuren over of er nou een kolommetje meer of je wel netwerk of niet mee moet nemen ofzo, maar dat doet niets af aan het model. Er zal altijd focus zijn, denk ik, op bijvoorbeeld of op de data-infrastructuurkant of op de applicatiekant. Het is maar net wat zeg maar de aard van het outsourcecontract is.
RESPONDENT2: Dus in die zin denk ik dat het niet vaak zal zijn dat je als gebruiker het hele model toepast, want dat is niet heel logisch.

NUT A.
RESPONDENT2: Als die bedoelt is als een soort leidraad waar mensen, te helpen, als wij voor dit soort, zeg maar, beslissingen staan dan denk ik dat het prima kan werken.
RESPONDENT2: Ja, ik noem dan dit soort modellen is dan vaak een soort van leidraad voor iemand he. Het is een soort proceskaart van dit zijn de, let op, als je er mee aan de slag gaat, dan moet je deze onderwerpen, moet je er wel over nagedacht hebben.
RESPONDENT2: Nou ja, het kan nuttig zijn voor mensen die onervaren zijn in dit soort outsourceprocessen, dus die hebben dan een leidraad of een houvast of een beetje meer structuur en systematische aanpak om te voorkomen dat je dingen mist. Daar is het nuttig voor.

NUT B.
RESPONDENT2: Maar het helpt in ieder geval van het geven van structuur aan dit soort beslissingen en processen. Dus dat is eh, ik denk ook echt dat dat zo is. Als iemand een hele ervaren outsource-consultant is, die doet dit zonder dat er een model is. Die doet dit gewoon.
RESPONDENT2: En dan geef je een structuur, je geeft een leidraad, je geeft ook een soort van verantwoordelijkheid, je dwingt mensen na te denken over bepaalde sub-onderwerpen, en dat er uiteindelijk, en dat is dan ook het, denk ik, dat je uiteindelijk geen of minder verrassingen hebt. Dus dat je niet een onderwerp vergeten bent, bijvoorbeeld een HR of wat dan ook, dat je die beslissing hebt genomen, alle

stappen hebt gedaan en dat je ineens, ja, tegen dingen aan loopt die je had kunnen voorzien.
RESPONDENT2: We hebben heel veel sourcing-projecten gedaan en de mensen moeten er aan wennen. Weet ik veel. Er zit een change management kant aan, er zit een techniek kant aan, er zit een proceskant aan, er zit een HR-kant aan, er zit een juridische kant aan, er zit een verzekeringskant aan, er zit een, bij wijze van spreken he.

NUT C.
RESPONDENT2: Het houdt een keer op. Wat dat betreft, wat ik al zei, je hebt al een matrix van pak 'em beet 120 blokjes, dus dat ik denk, ik zou daar ook niet dieper op ingaan.
RESPONDENT2: Dat kan, maar dan ga je echt inzoomen op, ja, bij wijze van spreken, op één kolom ofzo. Eh, kijk, als je de kolom datacenters/facilities neemt, en je bent geïnteresseerd in de architectuur en de planning en wat er omheen is, en je vindt dat belangrijk, dan moet je daar op inzoomen en moet je ook aan je selectiecriteria eigenlijk daar eh, mede overwegingen doen.
RESPONDENT2:Dus, maar dat, dus je moet, in die zin, dat is noem het maar even de opmerking of het nut van zo'n model, eigenlijk moet je altijd, denk ik, zo'n model weer specifiek maken voor de situatie waarin die is.
RESPONDENT2: Maar je moet hem, hij moet, dit is een generiek model en om hem toe te passen moet je hem toch eigenlijk, ok bij dit onderwerp zijn deze van belang en deze zijn niet van belang. En hier moeten we zorgen dat we die vakjes allemaal goed ingevuld hebben. Ik denk dat dat altijd stap één is als je een generiek model toepast. De dekking van het model t.o.v. het vraagstuk wat voor ligt.
RESPONDENT2: Ja precies, ja dat bedoel ik met dat specifiek per vraagstuk maken he.

NUT D.
RESPONDENT2: En, daarbij het toepassen, mijn visie, als je dit soort modellen he, dus kan van nut zijn, maar je moet het niet rigide toepassen. En ik vraag me zelfs af of je niet toch ook eigenlijk een specialist nodig hebt die je helpt om zo'n model toe te passen.
RESPONDENT2: weet je, om jou [de klant] nou te helpen, hier, dit moet je maar eens voor jezelf gebruiken, volgens ons moet je dit doorlopen om een goede beslissing te kunnen nemen.
RESPONDENT2: Hoe viel het uit in de praktijk. Dat je zo'n klant aanreikt, van wacht even, als je dit gaat doen, dan moet je ook hier aan denken, moet je ook daar aan denken, moet je daar. Dan ben je eigenlijk dit model in hapklare brokken aan het maken.
RESPONDENT2: Er staat hier, heeft u andere aanvullingen of opmerkingen? Ik denk dat je bij wijze van spreken, dat is dat fijnmazig maken.

Interview 3 | *Respondent 3 | Bedrijf A*

STRUCTUUR A.
RESPONDENT3: Alleen die Vendor Management, dat is denk ik meer het, eh, wat bedoel je daarmee?
RESPONDENT3: En security, die is ook redelijk, die heb je ook niet verder uitgeschreven zeg maar. Ik denk dat onder security ook nog best wel veel, veel zaken vallen zeg maar.

STRUCTUUR B.
RESPONDENT3: Ik denk dat security iets meer, eh, ik mis ook een stukje, een stukje privacy zeg maar, waar die onder valt. Dat is mij ook niet helemaal helder.
RESPONDENT3: Ja, bij veiligheid denk je ook vaak aan toegang en hoe dat zeg maar, eh, hoe zaken afgeschermd zijn. Dus dat, daar zou je iets meer aandacht aan kunnen schenken.
RESPONDENT3: Nou ja, de, de prijsstelling van de outsourcing.
RESPONDENT3: Dat [prijsstelling] zie ik hier ook niet, misschien dat het onder IT Vendor Management valt, maar dat, het hele kostenaspect zeg maar van de, eh, is dat er juist bewust buiten gehouden of?

STRUCTUUR C.
RESPONDENT3: Ik vind dat, eh, infrastructuur is heel belangrijk gemaakt zeg maar, terwijl dat juist minder belangrijk wordt als je kijkt naar IT.
RESPONDENT3: Kijk je meer naar een stukje performance en beschikbaarheid en waar sla ik mijn data op. Dat

zijn dingen, dingen die interessant zijn, maar hoe dat zeg maar op detailniveau ingevuld is, ja, dat, daar, dat wordt min of meer maar voor lief aangenomen dat dat wel voor elkaar is zeg maar
RESPONDENT3: Ja, ik denk als je kijkt richting toekomst, dan zal het model denk ik steeds compacter worden zeg maar, omdat, ja, uiteindelijk gaat, tenminste dat is tenminste, ja, de trend dat er steeds meer naar de cloud gaat. Ja, dan, dan zullen er steeds minder aspecten, zullen echt gedetailleerd, eh, want je ziet nu dat je heel veel dezelfde lijntjes hebt.

NUT A.
RESPONDENT3: Nou, ik denk met name dat je, door het model te hanteren, dan kun je je contracten evalueren. Of je de juiste zaken, of in ieder geval een checklist van hè, is alles benoemd. En, en waar ligt een verantwoordelijkheid zeg maar.
RESPONDENT3: …van vroeger deed je alles zelf en nu besteed je het liefst zo veel mogelijk uit zeg maar. Dat is meer een tendens zeg maar. En, eh, ja, ik denk niet zo zeer dat je aan de hand van dit model, dat je daar anders over gaat nadenken, maar ik denk dat het je wel heel erg helpt om te kijken of er geen gaten zitten zeg maar in de dienstverlening van je leverancier. Dat het daarvoor helpt. Van, hé, ben ik niets vergeten of eh...
RESPONDENT3: Ik denk niet dat je het voor strategievorming zeg maar echt gaat gebruiken. Het is meer, eh, meer voor, om je risico's te analyseren, nou ja, dan is het model volgens mij wel heel erg bruikbaar

NUT B.
RESPONDENT3: Nou, ik denk dat het model zeg maar ook wel houvast geeft om je, alles wat je met outsourcing doet, om dat min of meer een soort van te categoriseren, zodat je ook bij punten soms beleid kan gaan, eh, en aan de hand hiervan kun je volgens mij wel bepalen of iets, eh, een outsourcings-project of dat veel of weinig aandacht behelst zeg maar.
RESPONDENT3: Ja, ik denk dat het ook wel input geeft voor het hele stukje AVG zeg maar. Dat je, eh, door dit contract zeg maar in, of het model in te vullen, kun je volgens mij heel veel beter bepalen hoe je qua AVG, met alles wat er bij hoort, verwerkingsovereenkomsten en met, eh, juist met het voorkomen van datalekken, van he maar, hoe is mijn outsourcing nu geregeld en welke gebieden behelzen aandacht en welke niet.

NUT C.
RESPONDENT3: Ja, nee, ja, tuurlijk, hoe meer je er in stopt, voor hoe meer toepassingen je het contract kunt gebruiken. Alleen, ja, de vraag is of je dan niet je doel voorbij gaat streven.

NUT D.
RESPONDENT3: Ik denk met name bij, bij producten en diensten, als je kijkt naar IT die niet echt native Cloud zijn zeg maar.

Interview 4 | *Respondent 4 | Bedrijf A*

STRUCTUUR A.
RESPONDENT4: Deze [cooperation and communication systems] was me niet helemaal duidelijk. .

STRUCTUUR B.
RESPONDENT4: Nee, dus ik kan zo even niet wat bedenken of ik wat mis.
RESPONDENT4: Al zijn sommige wel heel erg technisch, dan denk ik van ja...(…) Zoals netwerk bijv. ja, dat, ja, is dat...RESPONDENT4: Back-ups, is dat, is dat geen, is dat een onderdeel van, monitoring, data, zou dat ook niet een heel belangrijke kunnen zijn in je model?
RESPONDENT4: Ligt er aan wat het doel van dit ding is.

STRUCTUUR C.
RESPONDENT4: Voor ons wel, ja.
RESPONDENT4: Ja, kijk ja, misschien security inderdaad

NUT A.
RESPONDENT4: Nou, ik denk als je een iets grotere organisatie, kijk, dan zal zo'n invuloefening, zou een bedrijf

kunnen helpen met van, oh ja, daar moet ik over nadenken. Wil ik dat, wil ik daar zelf over nadenken, wil ik daar zelf invloed op hebben of wil ik juist een partner zoeken die dat voor mij doet.
RESPONDENT4: Ja, of ga je naar een partner toe die eigenlijk al die punten invult voor je. Dus daar kan het voor helpen, als je zegt van hé vul dit eens in, en dan ga je vanuit dit model ga je dan kijken van wat voor type partner ga ik zoeken.
RESPONDENT4: Ik denk dat het ook heel veel te maken heeft met, met hoe essentieel is het, hoe essentieel is je outsourcing.
RESPONDENT4: Dan ben je daar meer mee bezig. Maar ik denk voornamelijk dat het iets, niet voor de kleine bedrijven, dus eigenlijk meer de middel bedrijven die daar gebruik van kunnen maken, in ieder geval even nadenken van, oh ja, moet ik daar over nadenken, ja, ok. Daar zou het voor kunnen helpen.

NUT B.
RESPONDENT4: Ja, dat denk ik wel. Ik denk dat je daar goed moet nadenken over hé wat heb ik nu intern, wat vind ik belangrijk, waar wil ik invloed op houden, waar wil ik geen invloed op houden. Ik denk dat dat wel goede discussies kan zijn, want als je, je krijgt dus een stukje belangenverstrengeling, heb je daar wel een IT
RESPONDENT4: Nee, precies, hier denk ik van dat zal ik outsourcen, ja, dan ga ik intern eens even, van hé we hebben hier een keus, wat doen we er mee?

NUT C.
RESPONDENT4: En hoe lang doe je dat en, eh, is een hele server back-up, heb je dat bijv., je kunt natuurlijk zeggen je hebt data back-up, maar je hebt ook server back-up, wat als ineens het niet meer werkt, omdat, hoe snel kun je weer aan het werk.
RESPONDENT4: Ja, dat denk ik wel ja. Bij security en back-up, ja, dat, dat, volgens mij zijn dat heel belangrijke dingen.

NUT D.
RESPONDENT4: Ja, ligt er aan wat het doel van dit ding is. Kijk, als je zegt van ik wil outsourcen en ik wil, hé ik moet daar over nadenken, dan is het heel handig. Op het moment dat je zegt ik wil dingen wel zelf gaan doen en je bent heel erg IT, je hebt een IT-partij, ja, dan kunnen sommige dingen misschien inderdaad wat breder getrokken worden.

Interview 5 | *Respondent 5 | Bedrijf A (Subsidiary B)*

STRUCTUUR A.
RESPONDENT5: Nee, ja, je moet ze soms eventjes toepassen op de, op de kolom waar ze van op toepassing zijn natuurlijk, maar. Ja, en je hebt ze hier ook nog eens een keer uitgeschreven, dus ja.

STRUCTUUR B.
RESPONDENT5: Nou, ja, maar het is ook even de vraag af en toe of die, of het model groter moet. Ik bedoel groter, hoe meer, eh, ja, hoe groter je hem maakt, hoe meer discussiepunten je ook kan hebben. Volgens mij is ie nu juist mooi compact, tenminste als ik even naar ons kijk, ik weet niet hoe hij voor anderen is. Volgens mij redelijk mooi compact. Ik zou er ook niet heel veel meer aan doen. Nee, dus daar kan ik, eh, wat mij betreft is dat, eh, volgens mij wel compleet.

STRUCTUUR C.
RESPONDENT5: En zo ligt het er ook een beetje aan wat de toepassing is, kijk, nu zeg je tegen mij, we gaan even een uurtje zitten, gaan we dat doen. Op het moment dat je dit ding 3x zo groot maakt, ga je ook 3x zo lang zitten. Dus dan is ook de vraag van, ja, weet je, als je met een model gaat zitten met iemand die een keus moet gaan maken voor outsourcing, ja, je zou kunnen zeggen ik heb het model waarin we in een uurtje kunnen gaan kijken of ik heb het model waar we 3 uur lang in gaan kijken van...

NUT A.
RESPONDENT5: Nou, ja, ik denk dat het met outsourcing is het altijd de vraag van joh, weet je, het is niets anders dan de vraag ga ik het zelf doen of ga ik het bij een ander neerleggen. En ik denk dat je in zo'n model

kun je naar voren halen, ok, wat voor beeld heb ik daar bij, bij de outsourcing, wat wil ik gaan outsourcen.
RESPONDENT5: Misschien kom ik er in dit model wel achter dat ik eigenlijk veel meer moet gaan outsourcen dan ik van tevoren had gedacht. Maar misschien kom ik er in zo'n model wel achter van, ja, wacht eens even zij doen eigenlijk ook een hele software-laag, misschien moet ik die eerste software-laag bij hun ook wel outsourcen, heb ik daar geen werk mee.
RESPONDENT5: Kijk, weet je, je gaat zo'n model ga je niet invullen, omdat jij, weet ik veel, eh, jaarlijks tienduizend euro gaat, iets in outsourcen ofzo. Maar op het moment dat jij meerdere tonnen gaat outsourcen, dan is dat wel eventjes waard om zo'n model er tegenaan te gooien, om daar is even wat, even goed over na te denken van, hé, heb ik alle facetten in mijn hoofd heb ik die langsgelopen.
RESPONDENT5: Want het is ook niets anders eigenlijk een soort van checklist waar een antwoord uit komt of om te kijken of dat antwoord nog steeds past bij jouw idee in je hoofd.

NUT B.
RESPONDENT5: Ja, ik denk dat, ik denk juist wel, dat zeggen we net, van, eh, ik denk dat het juist het voetje, discussie, van, weet je, heb ik alles, heb ik overal over nagedacht.

NUT C.
RESPONDENT5: Ja, dat zeg ik net, dat ligt er aan wat je tijd is, wat de tijd is wat je er in wilt steken. Kijk, hier krijg je een, als dit een gedetailleerd model is, of een, sorry, een compact model is, krijg je een compact antwoord. Heb je een gedetailleerd model, krijg je een gedetailleerd antwoord. Dus kan het van nut zijn met eventuele uitbreidingen, ja, ik denk het wel, maar dat ligt er aan.
RESPONDENT5: Precies, want wat ik zelf als ondernemer altijd vaak vind, van als je ergens over na gaat denken, ik hoef niet gelijk de detail in, ik wil eerst eigenlijk hoog over, eigenlijk een proof of concept hebben. Dus stel dat wij in dat geval hadden gezegd we zitten te denken aan outsourcen, dan ga je dit model eens eventjes invullen. Dan heb je na een uur kom je er achter, ok, nou, volgens mij zijn dit de dingetjes die ik wel kan outsourcen.
RESPONDENT5: Wil ik daar dan nog eens een keer verder over na gaan denken, want we gaan nu de volgende stap maken, goh, gaan we voor dit jaar daar voor een ton in investeren. Dan wil ik toch nog eens een keer de details verder in gaan. En waarschijnlijk krijg je daar hetzelfde antwoord uit, maar misschien komen daar nog extra dingetjes bij, waar je denkt, oh, daar had ik nog niet aan gedacht, daar moet ik ook rekening mee houden. Of misschien kom je er wel iets in tegen, dat je zegt van wacht eens even, maar dan, eh, juist niet.
RESPONDENT5: Nou, maar dat zou dus ook kunnen zijn, dat je zegt van, weet je, ik heb bijv. een model waarin ik, eh, ja, je wilt natuurlijk één model hebben, maar het zou best wel kunnen zijn dat je zegt van, nou, weet je, in het hoge model, in het korte model, daar komt dat, x komt daar aan bod, beveiliging hebben we één onderdeeltje daarvan. Alleen in het uitgebreidere model, ja, dan hebben we beveiliging zeg maar in 6, 7, 8 verschillende onderdelen...
RESPONDENT5: Bijvoorbeeld, je zou ook nog sub-modellen kunnen verzinnen op dit ding, dus dat je zegt van ik heb hier ééntje, een model, daarin gaan we zien, ok, in welke, welk straatje val jij, en hieronder hebben we eigenlijk 3 uitgewerkte sub-modellen. En de ene is meer voor infrastructuur, de andere is wat meer voor de software-kant.

NUT D.
RESPONDENT5: Nee, maar dat, omdat je niet alles van een model invult, wil niet zeggen dat het model niet klopt. Misschien juist wel, dat is het tegenovergestelde, hij klopt juist wel, want je ziet hier juist in…

5.2 Step 5 | Pattern Matching

In step 5 the comments per research question were checked by means of pattern matching, hence the colours:

STRUCTUUR A.
RESPONDENT1: Niet altijd.
RESPONDENT1: Ja, kijk, dit is wel heel abstract. Dan moet je er wel goede voorbeelden bij kunnen noemen,

wat je daar nou onder verstaat onder die termen.
RESPONDENT2: Nou, ik vind zelf het op een zeker moment lastig worden, wat dan precies het verschil is tussen, bij wijze van spreken als je naar architectuur kijkt, planning, implementatie, maintenance, dat snap ik. Maar wat is dan management?
RESPONDENT3: Alleen die Vendor Management, dat is denk ik meer het, eh, wat bedoel je daarmee?
RESPONDENT3: En security, die is ook redelijk, die heb je ook niet verder uitgeschreven zeg maar. Ik denk dat onder security ook nog best wel veel, veel zaken vallen zeg maar.
RESPONDENT4: Deze [cooperation and communication systems] was me niet helemaal duidelijk.
RESPONDENT4: Al zijn sommige wel heel erg technisch, dan denk ik van ja...(…) Zoals netwerk bijv. ja, dat, ja, is dat...
RESPONDENT5: Nee, ja, je moet ze soms eventjes toepassen op de, op de kolom waar ze van op toepassing zijn natuurlijk, maar. Ja, en je hebt ze hier ook nog eens een keer uitgeschreven, dus ja.

STRUCTUUR B.

RESPONDENT1: Staat er iets in over support? Ja, kijk, als het maar ergens onder zit dan is het goed, dat is belangrijk.
RESPONDENT1: Dat ene is tegenwoordig heel belangrijk, die databescherming via de AVG.
RESPONDENT1: HRM vind ik beetje een vreemde eend, snap ik niet helemaal, hoe dat hiertussen...
RESPONDENT1: Ik weet niet of dat in dit model terugkomt, maar dat [installatierechten | administrator-rechten] zijn belangrijke overwegingen voor outsourcen.
RESPONDENT2: Nou, ik denk als je er zo naar kijkt dat het wel compleet is. Ik weet niet of er iets af kan, maar als je veel voorbeelden neemt waar je vakjes leeg laat, dat die er dan af kunnen, omdat je dan die niet raakt.
RESPONDENT2: En aansprakelijkheid staat hier niet echt in he.
RESPONDENT3: Ik denk dat security iets meer, eh, ik mis ook een stukje, een stukje privacy zeg maar, waar die onder valt. Dat is mij ook niet helemaal helder.
RESPONDENT3: Dat [prijsstelling] zie ik hier ook niet, misschien dat het onder IT Vendor Management valt, maar dat, het hele kostenaspect zeg maar van de, eh, is dat er juist bewust buiten gehouden of?
RESPONDENT3: Ja, bij veiligheid denk je ook vaak aan toegang en hoe dat zeg maar, eh, hoe zaken afgeschermd zijn. Dus dat, daar zou je iets meer aandacht aan kunnen schenken.
RESPONDENT3: Nou ja, de, de prijsstelling van de outsourcing.
RESPONDENT4: Nee, dus ik kan zo even niet wat bedenken of ik wat mis.
RESPONDENT4: Back-ups, is dat, is dat geen, is dat een onderdeel van, monitoring, data, zou dat ook niet een heel belangrijke kunnen zijn in je model?
RESPONDENT4: Ligt er aan wat het doel van dit ding is.
RESPONDENT5: Nou, ja, maar het is ook even de vraag af en toe of die, of het model groter moet. Ik bedoel groter, hoe meer, eh, ja, hoe groter je hem maakt, hoe meer discussiepunten je ook kan hebben. Volgens mij is ie nu juist mooi compact, tenminste als ik even naar ons kijk, ik weet niet hoe hij voor anderen is. Volgens mij redelijk mooi compact. Ik zou er ook niet heel veel meer aan doen. Nee, dus daar kan ik, eh, wat mij betreft is dat, eh, volgens mij wel compleet.

STRUCTUUR C.

RESPONDENT1: Ja, kijk, dit is natuurlijk vanuit literatuur, dan heb je dit natuurlijk op een heel hoog niveau. Het gaat bij mij, laat maar zeggen, op uitvoeringsniveau, als dat maar ergens tussen valt, dan zit het er in.
RESPONDENT1: Dan lijkt ie mij wel compleet. Ik heb dan geen dingen gehoord die er niet in zitten.
RESPONDENT2: Ja, ik denk, als je het voorbeeld wat wij nu pakken, dan is het model beperkt hanteerbaar, omdat wij adresseren niet zeg maar de hele matrix.
RESPONDENT2: Dus als je dan naar zo'n model kijkt, je reflecteer terug, dan denk je ja, ik heb die stappen allemaal wel gedaan. Dus al die onderwerpen die heb je echt wel in je evaluatie meegenomen. Alleen je loopt ze niet zo, in ieder geval ik niet, en dat heeft misschien, als je hele grote projecten doet misschien wel, maar je loopt ze niet zo, echt zo, zo stap, stap, stap door.
RESPONDENT2: En je kunt altijd zeuren over of er nou een kolommetje meer of je wel netwerk of niet mee moet nemen ofzo, maar dat doet niets af aan het model. Er zal altijd focus zijn, denk ik, op bijvoorbeeld of op de data-infrastructuurkant of op de applicatiekant. Het is maar net wat zeg maar de aard van het

outsourcecontract is.
RESPONDENT2: Dus in die zin denk ik dat het niet vaak zal zijn dat je als gebruiker het hele model toepast, want dat is niet heel logisch.
RESPONDENT3: Ik vind dat, eh, infrastructuur is heel belangrijk gemaakt zeg maar, terwijl dat juist minder belangrijk wordt als je kijkt naar IT.
RESPONDENT3: Kijk je meer naar een stukje performance en beschikbaarheid en waar sla ik mijn data op. Dat zijn dingen, dingen die interessant zijn, maar hoe dat zeg maar op detailniveau ingevuld is, ja, dat, daar, dat wordt min of meer maar voor lief aangenomen dat dat wel voor elkaar is zeg maar.
RESPONDENT3: Ja, ik denk als je kijkt richting toekomst, dan zal het model denk ik steeds compacter worden zeg maar, omdat, ja, uiteindelijk gaat, tenminste dat is tenminste, ja, de trend dat er steeds meer naar de cloud gaat. Ja, dan, dan zullen er steeds minder aspecten, zullen echt gedetailleerd, eh, want je ziet nu dat je heel veel dezelfde lijntjes hebt.
RESPONDENT4: Voor ons wel, ja.
RESPONDENT4: Ja, kijk ja, misschien security inderdaad.
RESPONDENT5: En zo ligt het er ook een beetje aan wat de toepassing is, kijk, nu zeg je tegen mij, we gaan even een uurtje zitten, gaan we dat doen. Op het moment dat je dit ding 3x zo groot maakt, ga je ook 3x zo lang zitten. Dus dan is ook de vraag van, ja, weet je, als je met een model gaat zitten met iemand die een keus moet gaan maken voor outsourcing, ja, je zou kunnen zeggen ik heb het model waarin we in een uurtje kunnen gaan kijken of ik heb het model waar we 3 uur lang in gaan kijken van...

NUT A.

RESPONDENT1: Stel je voor, wat ik noem, dat puntje dat ze dat niet oplossen. En je wilt naar een andere partij gaan kijken, dan kan dit wel nuttig zijn.
RESPONDENT1: Ja, kijk, er staan gewoon dingen in dat ik denk daar heb ik destijds niet aan gedacht om dat uit te vragen aan die kant. We hebben gewoon puur gekeken naar hoe werkt het. Wat wij willen werkt dat en hoe zij dat aanbieden, daar heb ik nooit naar gevraagd, want dat ligt niet bij ons. Het is prima gegaan, het is niet dat we er ontevreden over zijn, maar je kunt er wel gerichter naar vragen, dan heb je er meer informatie over en kun je bedrijven of aanbieders naast elkaar gaan leggen.
RESPONDENT2: Als die bedoelt is als een soort leidraad waar mensen, te helpen, als wij voor dit soort, zeg maar, beslissingen staan dan denk ik dat het prima kan werken.
RESPONDENT2: Ja, ik noem dan dit soort modellen is dan vaak een soort van leidraad voor iemand he. Het is een soort proceskaart van dit zijn de, let op, als je er mee aan de slag gaat, dan moet je deze onderwerpen, moet je er wel over nagedacht hebben.
RESPONDENT2: Nou ja, het kan nuttig zijn voor mensen die onervaren zijn in dit soort outsourceprocessen, dus die hebben dan een leidraad of een houvast of een beetje meer structuur en systematische aanpak om te voorkomen dat je dingen mist. Daar is het nuttig voor.
RESPONDENT3: Nou, ik denk met name dat je, door het model te hanteren, dan kun je je contracten evalueren. Of je de juiste zaken, of in ieder geval een checklist van hè, is alles benoemd. En, en waar ligt een verantwoordelijkheid zeg maar.
RESPONDENT3: …van vroeger deed je alles zelf en nu besteed je het liefst zo veel mogelijk uit zeg maar. Dat is meer een tendens zeg maar. En, eh, ja, ik denk niet zo zeer dat je aan de hand van dit model, dat je daar anders over gaat nadenken, maar ik denk dat het je wel heel erg helpt om te kijken of er geen gaten zitten zeg maar in de dienstverlening van je leverancier. Dat het daarvoor helpt. Van, hé, ben ik niets vergeten of eh...
RESPONDENT3: Ik denk niet dat je het voor strategievorming zeg maar echt gaat gebruiken. Het is meer, eh, meer voor, om je risico's te analyseren, nou ja, dan is het model volgens mij wel heel erg bruikbaar.
RESPONDENT4: Nou, ik denk als je een iets grotere organisatie, kijk, dan zal zo'n invuloefening, zou een bedrijf kunnen helpen met van, oh ja, daar moet ik over nadenken. Wil ik dat, wil ik daar zelf over nadenken, wil ik daar zelf invloed op hebben of wil ik juist een partner zoeken die dat voor mij doet.
RESPONDENT4: Ja, of ga je naar een partner toe die eigenlijk al die punten invult voor je. Dus daar kan het voor helpen, als je zegt van hé vul dit eens in, en dan ga je vanuit dit model ga je dan kijken van wat voor type partner ga ik zoeken.
RESPONDENT4: Ik denk dat het ook heel veel te maken heeft met, met hoe essentieel is het, hoe essentieel is je outsourcing.

RESPONDENT4: Dan ben je daar meer mee bezig. Maar ik denk voornamelijk dat het iets, niet voor de kleine bedrijven, dus eigenlijk meer de middel bedrijven die daar gebruik van kunnen maken, in ieder geval even nadenken van, oh ja, moet ik daar over nadenken, ja, ok. Daar zou het voor kunnen helpen.
RESPONDENT5: Nou, ja, ik denk dat het met outsourcing is het altijd de vraag van joh, weet je, het is niets anders dan de vraag ga ik het zelf doen of ga ik het bij een ander neerleggen. En ik denk dat je in zo'n model kun je naar voren halen, ok, wat voor beeld heb ik daar bij, bij de outsourcing, wat wil ik gaan outsourcen.
RESPONDENT5: Misschien kom ik er in dit model wel achter dat ik eigenlijk veel meer moet gaan outsourcen dan ik van tevoren had gedacht. Maar misschien kom ik er in zo'n model wel achter van, ja, wacht eens even zij doen eigenlijk ook een hele software-laag, misschien moet ik die eerste software-laag bij hun ook wel outsourcen, heb ik daar geen werk mee.
RESPONDENT5: Kijk, weet je, je gaat zo'n model ga je niet invullen, omdat jij, weet ik veel, eh, jaarlijks tienduizend euro gaat, iets in outsourcen ofzo. Maar op het moment dat jij meerdere tonnen gaat outsourcen, dan is dat wel eventjes waard om zo'n model er tegenaan te gooien, om daar is even wat, even goed over na te denken van, hé, heb ik alle facetten in mijn hoofd heb ik die langsgelopen.
RESPONDENT5: Want het is ook niets anders eigenlijk een soort van checklist waar een antwoord uit komt of om te kijken of dat antwoord nog steeds past bij jouw idee in je hoofd.

NUT B.

RESPONDENT1: Ja, dat [model van nut] sowieso. Daar staan dingen in, dat je denkt, die je kunt uitvragen, want dat hebben we nu natuurlijk niet gedaan. De techniek die erachter is, of wat hun beleid op bepaalde dingen is. Dus ik hoor hier wel dingen, dat je denkt van ja, misschien moeten we dat de volgende keer even bij hun uitvragen. Maar dit kun je wel naast een contract leggen en kijken staat alles er in beschreven.
RESPONDENT1: Ja, dat denk ik wel ja. Er staan wel dingen in waar je in eerste instantie niet aan denkt om te vragen.
RESPONDENT2: Maar het helpt in ieder geval van het geven van structuur aan dit soort beslissingen en processen. Dus dat is eh, ik denk ook echt dat dat zo is. Als iemand een hele ervaren outsource-consultant is, die doet dit zonder dat er een model is. Die doet dit gewoon.
RESPONDENT2: En dan geef je een structuur, je geeft een leidraad, je geeft ook een soort van verantwoordelijkheid,
RESPONDENT2: …je dwingt mensen na te denken over bepaalde sub-onderwerpen, en dat er uiteindelijk, en dat is dan ook het, denk ik, dat je uiteindelijk geen of minder verrassingen hebt. Dus dat je niet een onderwerp vergeten bent, bijvoorbeeld een HR of wat dan ook, dat je die beslissing hebt genomen, alle stappen hebt gedaan en dat je ineens, ja, tegen dingen aan loopt die je had kunnen voorzien.
RESPONDENT2: We hebben heel veel sourcing-projecten gedaan en de mensen moeten er aan wennen. Weet ik veel. Er zit een change management kant aan, er zit een techniek kant aan, er zit een proceskant aan, er zit een HR-kant aan, er zit een juridische kant aan, er zit een verzekeringskant aan, er zit een, bij wijze van spreken he.
RESPONDENT3: Nou, ik denk dat het model zeg maar ook wel houvast geeft om je, alles wat je met outsourcing doet, om dat min of meer een soort van te categoriseren, zodat je ook bij punten soms beleid kan gaan, eh, en aan de hand hiervan kun je volgens mij wel bepalen of iets, eh, een outsourcings-project of dat veel of weinig aandacht behelst zeg maar.
RESPONDENT3: Ja, ik denk dat het ook wel input geeft voor het hele stukje AVG zeg maar. Dat je, eh, door dit contract zeg maar in, of het model in te vullen, kun je volgens mij heel veel beter bepalen hoe je qua AVG, met alles wat er bij hoort, verwerkingsovereenkomsten en met, eh, juist met het voorkomen van datalekken, van he maar, hoe is mijn outsourcing nu geregeld en welke gebieden behelzen aandacht en welke niet.
RESPONDENT4: Ja, dat denk ik wel. Ik denk dat je daar goed moet nadenken over hé wat heb ik nu intern, wat vind ik belangrijk, waar wil ik invloed op houden, waar wil ik geen invloed op houden. Ik denk dat dat wel goede discussies kan zijn, want als je, je krijgt dus een stukje belangenverstrengeling, heb je daar wel een IT.
RESPONDENT4: Nee, precies, hier denk ik van dat zal ik outsourcen, ja, dan ga ik intern eens even, van hé we hebben hier een keus, wat doen we er mee?
RESPONDENT5: Ja, ik denk dat, ik denk juist wel, dat zeggen we net, van, eh, ik denk dat het juist het voetje, discussie, van, weet je, heb ik alles, heb ik overal over nagedacht.

NUT C.

INTERVIEWER: Precies, vooral die Capabilities, als je die beter uitlegt, wat wat is, eventueel met een voorbeeld, dan wordt het wel duidelijker.

RESPONDENT2: Het houdt een keer op. Wat dat betreft, wat ik al zei, je hebt al een matrix van pak 'em beet 120 blokjes, dus dat ik denk, ik zou daar ook niet dieper op ingaan.

RESPONDENT2: Dat kan, maar dan ga je echt inzoomen op, ja, bij wijze van spreken, op één kolom ofzo. Eh, kijk, als je de kolom datacenters/facilities neemt, en je bent geïnteresseerd in de architectuur en de planning en wat er omheen is, en je vindt dat belangrijk, dan moet je daar op inzoomen en moet je ook aan je selectiecriteria eigenlijk daar eh, mede overwegingen doen.

RESPONDENT2:Dus, maar dat, dus je moet, in die zin, dat is noem het maar even de opmerking of het nut van zo'n model, eigenlijk moet je altijd, denk ik, zo'n model weer specifiek maken voor de situatie waarin die is.

RESPONDENT2: Maar je moet hem, hij moet, dit is een generiek model en om hem toe te passen moet je hem toch eigenlijk, ok bij dit onderwerp zijn deze van belang en deze zijn niet van belang. En hier moeten we zorgen dat we die vakjes allemaal goed ingevuld hebben. Ik denk dat dat altijd stap één is als je een generiek model toepast. De dekking van het model t.o.v. het vraagstuk wat voor ligt.

RESPONDENT2: Ja precies, ja dat bedoel ik met dat specifiek per vraagstuk maken he.

RESPONDENT3: Ja, nee, ja, tuurlijk, hoe meer je er in stopt, voor hoe meer toepassingen je het contract kunt gebruiken. Alleen, ja, de vraag is of je dan niet je doel voorbij gaat streven.

RESPONDENT4: En hoe lang doe je dat en, eh, is een hele server back-up, heb je dat bijv., je kunt natuurlijk zeggen je hebt data back-up, maar je hebt ook server back-up, wat als ineens het niet meer werkt, omdat, hoe snel kun je weer aan het werk.

RESPONDENT4: Ja, dat denk ik wel ja. Bij security en back-up, ja, dat, dat, volgens mij zijn dat heel belangrijke dingen.

RESPONDENT5: Ja, dat zeg ik net, dat ligt er aan wat je tijd is, wat de tijd is wat je er in wilt steken. Kijk, hier krijg je een, als dit een gedetailleerd model is, of een, sorry, een compact model is, krijg je een compact antwoord. Heb je een gedetailleerd model, krijg je een gedetailleerd antwoord. Dus kan het van nut zijn met eventuele uitbreidingen, ja, ik denk het wel, maar dat ligt er aan.

RESPONDENT5: Precies, want wat ik zelf als ondernemer altijd vaak vind, van als je ergens over na gaat denken, ik hoef niet gelijk de detail in, ik wil eerst eigenlijk hoog over, eigenlijk een proof of concept hebben. Dus stel dat wij in dat geval hadden gezegd we zitten te denken aan outsourcen, dan ga je dit model eens eventjes invullen. Dan heb je na een uur kom je er achter, ok, nou, volgens mij zijn dit de dingetjes die ik wel kan outsourcen.

RESPONDENT5: Wil ik daar dan nog eens een keer verder over na gaan denken, want we gaan nu de volgende stap maken, goh, gaan we voor dit jaar daar voor een ton in investeren. Dan wil ik toch nog eens een keer de details verder in gaan. En waarschijnlijk krijg je daar hetzelfde antwoord uit, maar misschien komen daar nog extra dingetjes bij, waar je denkt, oh, daar had ik nog niet aan gedacht, daar moet ik ook rekening mee houden. Of misschien kom je er wel iets in tegen, dat je zegt van wacht eens even, maar dan, eh, juist niet.

RESPONDENT5: Nou, maar dat zou dus ook kunnen zijn, dat je zegt van, weet je, ik heb bijv. een model waarin ik, eh, ja, je wilt natuurlijk één model hebben, maar het zou best wel kunnen zijn dat je zegt van, nou, weet je, in het hoge model, in het korte model, daar komt dat, x komt daar aan bod, beveiliging hebben we één onderdeeltje daarvan. Alleen in het uitgebreidere model, ja, dan hebben we beveiliging zeg maar in 6, 7, 8 verschillende onderdelen...

RESPONDENT5: Bijvoorbeeld, je zou ook nog sub-modellen kunnen verzinnen op dit ding, dus dat je zegt van ik heb hier ééntje, een model, daarin gaan we zien, ok, in welke, welk straatje val jij, en hieronder hebben we eigenlijk 3 uitgewerkte sub-modellen. En de ene is meer voor infrastructuur, de andere is wat meer voor de software-kant.

NUT D.

RESPONDENT1: Nee, ik heb er verder geen opmerkingen over.

RESPONDENT2: En, daarbij het toepassen, mijn visie, als je dit soort modellen he, dus kan van nut zijn, maar je moet het niet rigide toepassen. En ik vraag me zelfs af of je niet toch ook eigenlijk een specialist nodig hebt die je helpt om zo'n model toe te passen.

RESPONDENT2: weet je, om jou [de klant] nou te helpen, hier, dit moet je maar eens voor jezelf gebruiken,

volgens ons moet je dit doorlopen om een goede beslissing te kunnen nemen.
RESPONDENT2: Hoe viel het uit in de praktijk. Dat je zo'n klant aanreikt, van wacht even, als je dit gaat doen, dan moet je ook hier aan denken, moet je ook daar aan denken, moet je daar. Dan ben je eigenlijk dit model in hapklare brokken aan het maken.
RESPONDENT2: Er staat hier, heeft u andere aanvullingen of opmerkingen? Ik denk dat je bij wijze van spreken, dat is dat fijnmazig maken.
RESPONDENT3: Ik denk met name bij, bij producten en diensten, als je kijkt naar IT die niet echt native Cloud zijn zeg maar.
RESPONDENT4: Ja, ligt er aan wat het doel van dit ding is. Kijk, als je zegt van ik wil outsourcen en ik wil, hé ik moet daar over nadenken, dan is het heel handig. Op het moment dat je zegt ik wil dingen wel zelf gaan doen en je bent heel erg IT, je hebt een IT-partij, ja, dan kunnen sommige dingen misschien inderdaad wat breder getrokken worden.
RESPONDENT5: Nee, maar dat, omdat je niet alles van een model invult, wil niet zeggen dat het model niet klopt. Misschien juist wel, dat is het tegenovergestelde, hij klopt juist wel, want je ziet hier juist in…

5.3 Step 6 and 7 | Labelling and sorting

During these steps the created groups were labelled with a short, but suitable title. Also the groups were sorted in a logical way and the entire document has been made visually more attractive. This specific document (step 6) does not add much value, so it is not attached. Step 7 compriseds an overview of all groups, incl. labels/titels, but without the original comments:

STRUCTUUR A:

1. Helderheid begrippen | Toelichting vereist
2. Helderheid begrippen | Uitsplitsing binnen begrippen onduidelijk
3. Helderheid begrippen | Vendor Management onduidelijk
4. Helderheid begrippen | Cooperation and Communication Systems onduidelijk
5. Helderheid begrippen | Te technisch

STRUCTUUR B:

1. Model compleet | Bij: Support
2. Model compleet | Bij: AVG (GDPR) / Privacy
3. Model compleet | Bij: Verantwoordelijkheid/ bevoegdheid
4. Model compleet | Bij: Prijzen/kosten
5. Model compleet | Bij: Back-ups
6. Model compleet | Af: HRM
7. Model compleet | Af: Niet alles wordt gebruikt
8. Model compleet | Geen opmerking / afhankelijk van toepassing

STRUCTUUR C:

1. Detaillering | Goed
2. Detaillering | Fout: Te gedetailleerd, veel wordt niet gebruikt
3. Detaillering | Fout: Infrastructuur te belangrijk
4. Detaillering | Fout: Security te algemeen
5. Detaillering | Afhankelijk van toepassing

NUT A:

1. Voorbeeldsituatie nut | Andere partner/leverancier
2. Voorbeeldsituatie nut | Overzicht dienstverlening leverancier
3. Voorbeeldsituatie nut | Leidraad, oriëntatie, vergeet ik niets, voldoen aan verwachting

4. Voorbeeldsituatie nut | Contractevaluatie
5. Voorbeeldsituatie nut | Risicoanalyse

NUT B:

1. Nuttige informatie | Zet aan tot nadenken (niet voor de hand liggende onderwerpen)
2. Nuttige informatie | Geeft structuur
3. Nuttige informatie | Input voor AVG/GDPR
4. Nuttige informatie | Inzage interne zaken en belang/invloed er van

NUT C:

1. Uitbreidingen van nut| Nee, model al groot/complex genoeg
2. Uitbreidingen van nut | Nee, model is generiek bedoeld
3. Uitbreidingen van nut | Ja, kunnen inzoomen/uitklappen (afhankelijk van toepassing)
4. Uitbreidingen van nut | Ja, d.m.v. een 2^{e} (veel gedetailleerder) model
5. Uitbreidingen van nut | Ja, back-up

NUT D:

1. Opmerkingen/aanvullingen | Nee, model is goed
2. Opmerkingen/aanvullingen | Ja, outsourcen is complex, involveer specialist (bij toepassen model)
3. Opmerkingen/aanvullingen | Ja, model aanbieden (leidraad) voor klanten die bij jou outsourcen
4. Opmerkingen/aanvullingen | Ja, model fijnmaziger maken
5. Opmerkingen/aanvullingen | Ja, model niet van toepassing bij native Cloud